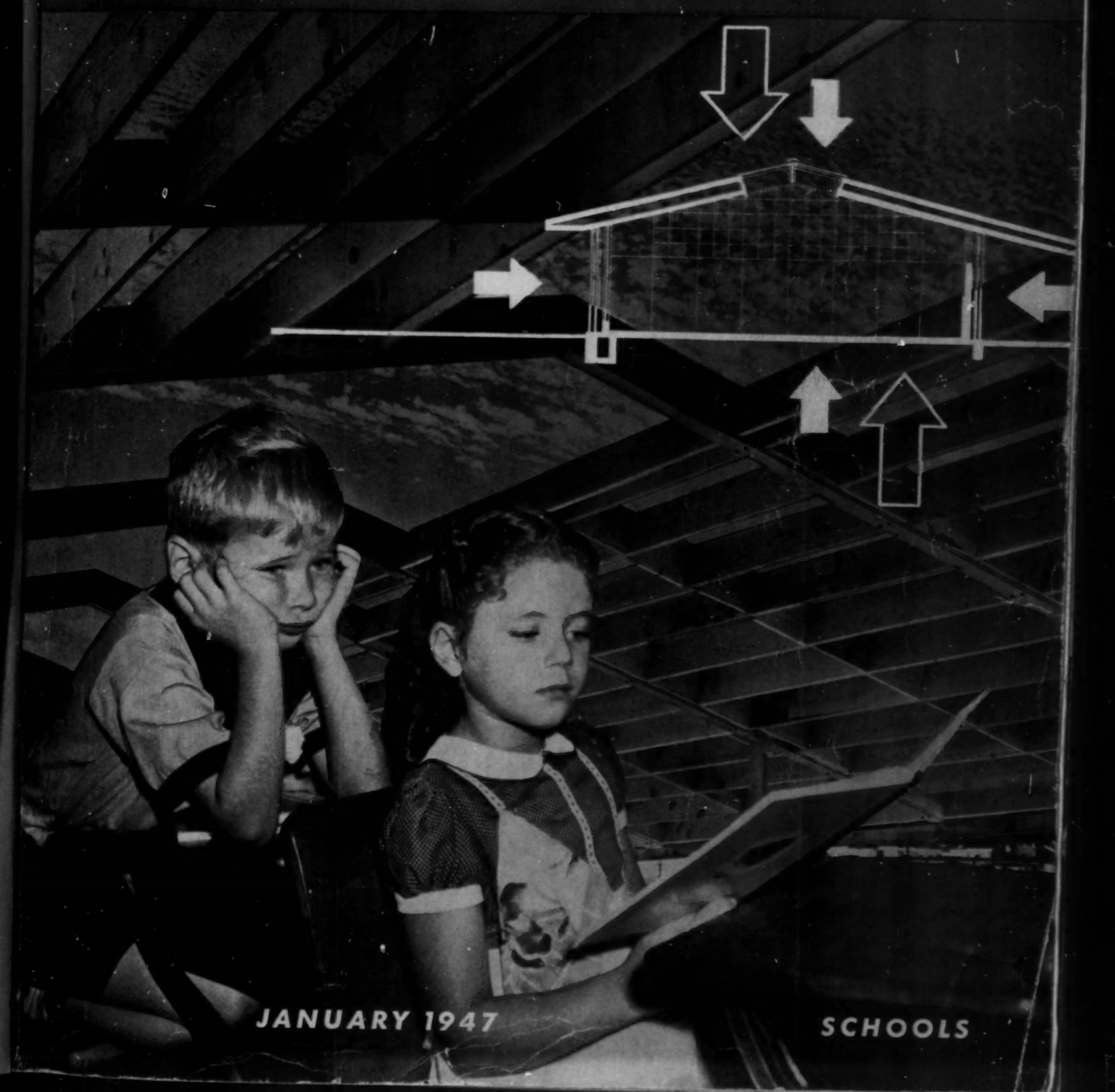
ARCHITECTURAL RECORD



JANUARY 1947

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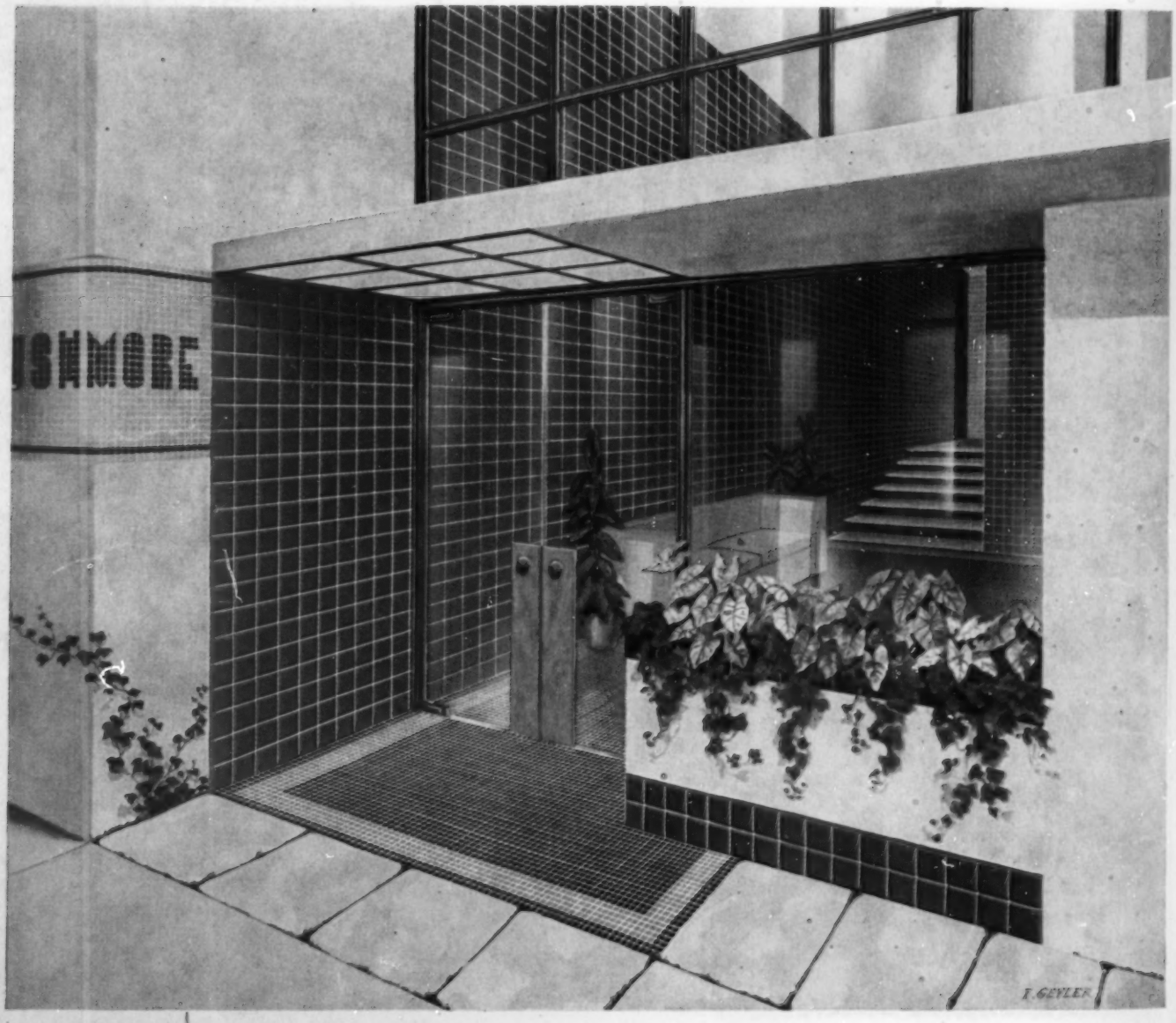

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ARCHITECTURAL RECORD (Vol. 101, No. 1, January, 1947) is published monthly by F. W. Dodge Corp., 10 Ferry Street, Concord, N. H., with editorial and executive offices at 119 W. 40th St., New York 18, N. Y. $4.50 per year; Foreign $6.50.

Entered as second-class matter at the Post Office, Concord, N. H., under the Act of March 3 1879.

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ARCHITECTURAL RECORD

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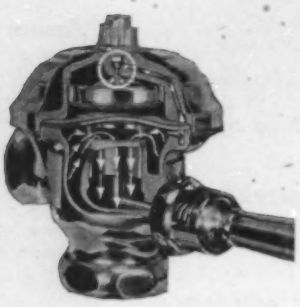
Architectural Record (combined with American Architect and Architecture) is published monthly by F. W. Dodge Corporation, 10 Ferry St., Concord, N. H., with Editorial and Executive Offices at 119 West 40th Street, New York 18, N. Y. Thomas S. Holden, Pres.; Howard J. Barringer, Vice-Pres. and Treas.; Irving W. Hadsell, Vice-Pres.; Chauncey L. Williams, Vice-Pres.; Sanford D. Stockton, Jr. Secy.; Walter F. De Salx, Asst. Treas.; Edwin H. Freed, Asst. Treas. Member Audit Bureau of Circulations and Associated Business Papers, Inc. Architectural Record is Indexed in Reader's Guide, Art Index and Industrial Arts Index. Subscription rates: United States and Possessions, Canada, Cuba, Mexico, Central and South America, and Spain, $4.50 the year, $7.50 for two years, $9 for three years; elsewhere, $6.50 the year, $11.50 for two years, $15 for three years. Single copy, $1. Circulation Manager: Marshall T. Ginn. Every effort will be made to return material submitted for possible publication if accompanied by stamped, addressed envelope, but the editors and the corporation will not be responsible for loss or damage. Other Dodge Services: Real Estate Record & Builders' Guide, Sweet's Files, Home Owners' Catalogs, Dodge Reports & Dodge Statistical Research Service.



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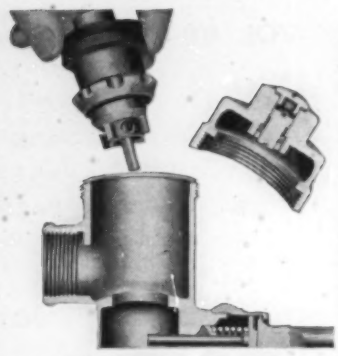

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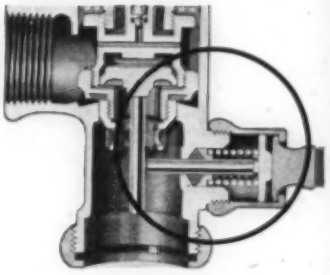

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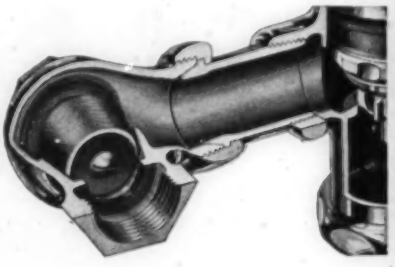

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Watrous Flush Valves

THE RECORD REPORTS

Congressional Action Foreseen • Creedon and Foley Replace Wyatt as Housing Expediter and NHA Head Rental Housing Pushed • Hospital Standards Passed

New trends affecting construction as a result of the November elections are beginning to take form in both building and official circles. For one thing, heads are turned with greater assurance to 1947; for another, federal officials contemplate a trimming of both government and labor wings by Congress.

Uncertain factor is the strike outlook, but, provided strikes are kept to a minimum, a general upsurge in building is anticipated. Congress is expected to act as a brake on strikes since labor leaders, foreseeing a rewriting of labor laws, prefer not to provoke the situation too greatly.

Indirectly affecting building prospects are various broad Congressional programs. While procedural, the reorganization program voted at the last session is important. This means a paring of committees in both houses; for instance, the original program called for reduction of House committees from 48 to 19 and Senate committees from 33 to 15. Along with normal delays in organizing a new Congress, this revamping will mean some delay in legislation.

Congress Will Act

Particular facets of the legislative program which are of interest are:

1. All governmental controls and war powers will be intensively studied and legislation drafted to curtail them. The President's December action lifting many of the building controls is considered indicative of what is to come.

2. Federal appropriations are to be definitely sliced as well as personal income taxes; excise levies are to be revised and corporation taxes recast (presumably without cutting rates).

3. Both judiciary and labor committees will look into labor and draw up bills to reshape relations of government, unions and management.

4. Representative Wolcott, of Michigan, as head of the House Banking and Currency Committee, promised a quick probe of the veterans' housing program and voiced hope for speedy passage of corrective legislation to eliminate regulations holding up construction. The Wagner-Ellender-Taft general housing bill, with Senator Taft's backing, is slated for consideration in the Senate, unless a better substitute bill can be framed, although few feel that the W.E.T. can make its way through the House Committee.

May Boost Rents

Also due for Congressional attention is the whole question of rents. If ceilings remain in this field, provision for increases appears certain, especially on new dwelling units. Wolcott has indicated that rent controls cannot be lifted altogether. If controls were removed, he asserts, "a small minority of unscrupulous landlords no doubt would gouge their tenants and there would be evictions."

Amendment of the Wagner Labor Act is backed in many building quarters and some want the Wage Hour Law changed. Suggestions include exemption of foremen from National Labor Relations Board jurisdiction, holding of unions accountable, outlawing of jurisdictional strikes, etc. Lumber men want the Wage Hour Law amended to provide a one-year limitation of the back-pay and triple-liability clause.

Sought by home builders, incidentally, is an adequate supply of skilled workers with special emphasis on getting the unions to allow more apprentices to be trained.

Wyatt Ends Work

President Truman's price decontrol moves of early November, although significant for construction, were outmatched a month later by his reluctance to let Housing Expediter Wyatt exercise "full" housing powers. Wyatt's departure left remaining construction controls largely in the hands of the telescoped reconversion agencies, and the future of the Veterans Emergency Housing Program to a Congress definitely distrustful of regulation.

Nubbin of the Housing Expediter's dissatisfaction was a tussle with RFC over loans to prospective prefabricators. RFC Director Allen told the Senate Defense Committee that the lending agency was unwilling to put up more than 60 to 80 per cent of the funds, that those seeking credit should venture more of their own funds. Wyatt stressed the need for emergency action rather than a lending "slowdown" and a "business-as-usual" attitude. At issue were roughly a dozen loan applications, particularly a $52,000,000 request from Lustron Corporation, which was in the limelight also in a dispute over lease of the Chrysler-Dodge war surplus plant at Chicago. Lustron wanted to use the

(*Continued on page 10*)

> **"Washington wits chuckle over the latest 'Wyatt prevaricated house.' Its front porch is a discarded Democratic platform; it has OPA ceilings and agricultural floors; interagency screening keeps out the bugs and flies; scarcity of glass for windows is solved by installing legal loopholes; the plumbing is made of old White House pipelines. The fence is of union pickets. If preferred, political hedging may be substituted."**
>
> — *Wall Street Journal*

— Drawn for the RECORD by Alan Dunn

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the kitchen that will still be modern in 1957!

Planned according to the latest time and motion studies . . . this "New Freedom Gas Kitchen" design features an "island treatment" that is functional as well as attractive. Note how it is step-planned for an even flow of work from refrigerator to sink to range to serving area . . . how smartly it solves the problem of a convenient eating place that's not underfoot in the kitchen itself!

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*the 1947 refrigerator that gives women everything they want**

*What they want according to recent consumer survey	How the new Gas refrigerator fills the bill!
Frozen food storage	Gas refrigerator has big locker for storing up to 60 standard packages of frozen foods.
Speedier ice supply	Gas refrigerator freezes 10.1 lbs. at once in trigger-release ice trays.
More room for more foods	Gas refrigerator has 11-way shelf adjustment to accommodate all shapes and kinds of foods.
Longer food freshness	Gas refrigerator maintains constant cold...has no on-and-off operation to endanger freshness.
Moist cold compartment	Gas refrigerator has two dew-action fresheners for crisping vegetables.
Ease of cleaning	Gas refrigerator has streamlined stain-resistant finish inside and out.
Lasting economy	Gas refrigerator has no moving parts to break down or wear out.
Silence!	Gas runs the only automatic refrigerating system that never makes a sound!

GAS

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AMERICAN GAS ASSOCIATION

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than the refrigerator you can recommend without reservation . . . the new Gas refrigerator that costs so little to run . . . requires only the simplest connections . . . is compact and smart-looking in the finest new home—and—gives longer service with greater satisfaction!

plant to make its housing units whereas the War Assets Administration had given a lease to a motor car manufacturer.

The President, taking the elections as a sign of sentiment against controls, could not go along with Wyatt's subsequent recommendations for full exercise of emergency housing authority.

Coincident with the Wyatt development came the rail embargo as a result of the coal strike, which hampered all freight but a few essential commodities and put a temporary crimp in distribution of building supplies. This, of course, heightened the situation already caused by the shutdowns in steel and other industries and made even more unpredictable the building prospects.

Housing Officers Named

Following Wyatt's resignation, President Truman completely revamped the federal housing bureaus, appointing two men to Wyatt's dual housing role: Frank Creedon as Housing Expediter; and Raymond M. Foley as National Housing Administrator. By executive order the President also wiped out the OPA, the OWMR, the CPA and the OES, creating a new agency, the Office of Temporary Controls, which will combine the remaining functions of the four and gradually wind up their activities. Named as head of the OTC is Maj. Gen. Philip B. Fleming, of the FWA.

Materials Increase

Before many months are out of the way, tight spots in building materials are counted on to improve — unless, of course, strikes, directly or indirectly, interfere. While prefabrication may increase, the Wyatt-set goals under the veterans housing program are discounted.

As the old year drew to a close, the Civilian Production Administration calculated that by January there would be no more shortages of brick, concrete block, cement, hot water heaters, warm air furnaces — provided the coal strike was not prolonged. The agency foresaw a supply-demand balance on sinks, structural clay tile, asphalt roofing, and radiation by the first quarter of 1947. It reported, however, that a long wait may be ahead for cast iron soil pipe, bathtubs, lavatories and water closet bowls.

Distribution is Problem

CPA foresaw, too, some clearing of maldistribution of shipments and delivery delays. Maldistribution has arisen in particular, it said, through use of prewar patterns in distribution whereas the postwar pattern shows a shift from eastern areas to areas west of the Mississippi.

In this connection the Commerce Department reports that lumber distribution is now of greater concern than production. Need for channeling a limited supply to consumers has brought about serious maladjustments in the traditional system of distribution. Consumer demand has been particularly insatiable and the distributors' stock turnover in some cases has been as frequent as once every eight working days.

Department studies show that lumber distributors have at no time since 1943 received their normal share of production. Distributing regions farthest from centers of production, such as the prairie, lake and central regions, have received the smallest share of mill supplies.

Land Program Drawn

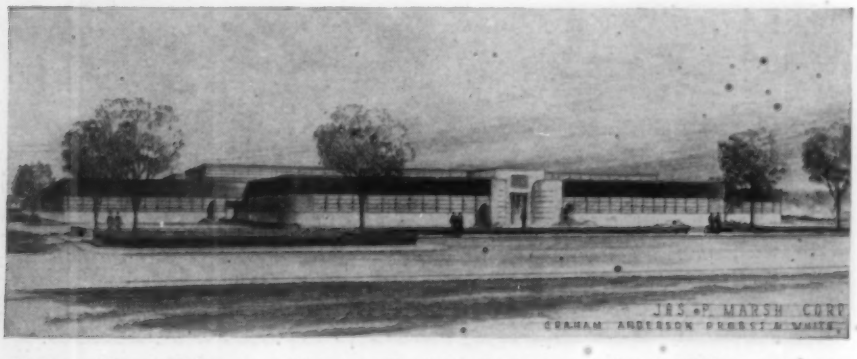
In view of estimates that most 1947 homes will be built on so-called "raw" land — this represents the findings of a 50-city survey by NHA — mayor's emergency housing committees have been given a suggested program for community action on new land projects, including the enforcing and simplifying of foreclosure proceedings against abandoned tax property. Such a program presumably would include, too, modern subdivision regulations, zoning ordinances, building codes and other forms of control of city planning. NHA estimates that 300 square miles of raw land throughout the nation must be developed at a cost of $1 billion.

As to building codes, federal officials state that producers of prefabricated houses especially are affected. Among code obstacles reported are excessive requests for minimum floor space, ceiling heights, and floor loads; hostility to drywall construction, and requirements for conventional framing regardless of type of material or panel construction.

National Code Urged

Most industry organizations and government agencies advocate a national building code based upon accepted performance standards and including co-development of administrative techniques which could be adopted by state and local governments. Organizations

(*Continued on page 12*)



Factory-office building near Chicago. Graham, Anderson, Probst & White, architects

BUILDING NOTES

Factory and Offices

CPA approval has been given for the immediate construction of a new factory and office building for the Jas. P. Marsh Corp., manufacturer of industrial instruments and heating specialties, in Skokie, Ill., a suburb of Chicago.

Designed by Graham, Anderson, Probst & White, the new building will be of concrete and steel with cut stone facings, one story in height, air conditioned and sound-proofed throughout.

Veterans' Houses

Those enterprising Ohio veterans who, tired of waiting for their housing problems to be solved, banded together and built their own homes (see ARCHITECTURAL RECORD, Sept., 1946, p. 154), have moved in.

The little group of 17 ex-G.I.s (only 15 originally), most of whom are employees of Owen-Corning Fiberglas Corp., Toledo, had the satisfaction of seeing their project completed in record time. Ground was broken only last July 5th; on October 4th an elaborate "Roof-tree Ceremony" was staged to mark the completion of the first house in the group.

A basic FHA plan for a two-story, wood frame, six-room house was used, with individual variations, for 14 of the 17 homes. Changes from the basic plan were made by the contractors, and professional architectural services were wholly dispensed with.

Atomic Research Lab

Plans have been announced by the War Department for the establishment of a $20 million nuclear research laboratory near Schenectady, N. Y., for the study of power generation from atomic energy.

To be called The Knolls Atomic Power Laboratory, the proposed center — the fourth in the Manhattan Project's network of laboratories — will be operated by the General Electric Company.

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MILLER FLUORESCENT TROFFER LIGHTING SYSTEMS not only provide GOOD LIGHT . . . they also serve as a structural aid in the planning of the interior designs of stores, offices, schools, factories and public buildings. Miller TROFFERS can be used as "building blocks" to make an expanse of ceiling (walls, too) an integral part of an invitingly modernized interior to form *any ceiling pattern desired* . . . CEILINGS UNLIMITED. Additional advantages: Less than half usual number of supports needed from structural ceiling. Installation simplified. Wiring, conduit and conduit fitting costs cut 50 to 80%. Easy, accurate leveling of ceiling assured.

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and division THE GLAUBER BRASS MFG. CO., *Kinsman, Ohio*

THE RECORD REPORTS

(*Continued from page 10*)

interested in developing such codes include representatives of federal, state and local governments, construction industry organizations, standards associations, labor unions, building materials industry groups and research institutions.

Push Rental Housing

The Federal Housing Administration continues its advocacy of rental housing. In a new bulletin it states that practically every city in the country and even small towns offer a potential market for new rental property.

As to architectural considerations, FHA cites the following:

"Although primarily a technical problem, architectural planning has financial aspects since a project's success depends largely upon rental appeal.

"Poorly constructed property may allow lower initial costs, but it will probably involve high operating and maintenance costs. The greatest degree of investment security lies in property which is well-planned, economically constructed and operated, and in a desirable location.

"From the standpoint of mortgage or equity security, quality of material and construction must insure durability with low maintenance cost. Sound investment requires the presence of essential quality, to the exclusion if necessary of luxury arrangements.

"In general, all dwellings should provide rooms of adequate size and shape and room arrangements which offer privacy and general convenience, good light and ventilation, and a minimum of unusable space. This is essential if rental value is to be produced commensurate with cost of construction and operation.

"In order to obtain permanent acceptance, the design should be appropriate to the area in which the property is located, to climate and topography and to the local mode of living."

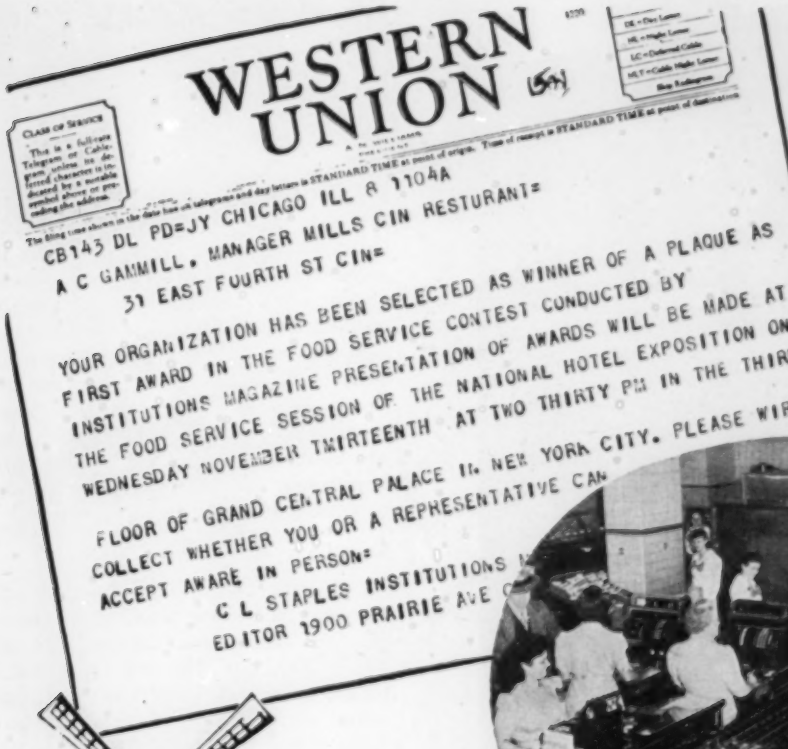
Conditions and regulations must be changed before equity capital can be drawn into the market in any volume.

As to home mortgages, Commissioner John H. Fahey, of the Federal Home Loan Bank Administration, warns mortgage bankers against "the danger of inflationary mortgages based upon excessive prices for homes." He asserts that the country is in the midst of "the most serious inflation of real estate prices in our history."

Few Choose Coal

The coal strike makes pertinent a trend away from coal heat in homes to use of gas and oil. NHA data on heating systems specified in veterans' houses,

(*Continued on page 14*)



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1. Selection of equipment for functional application
2. Placement of equipment
3. Sanitation in food preparation and service
4. Employee morale
5. Accident elimination
6. Speed in preparation of food
7. Efficiency in preparation of food
8. Savings in work hours
9. Ease of maintenance of equipment
10. Serving facilities and equipment
11. Ingenuity in meeting special problems
12. Psychological aspects in customer relations

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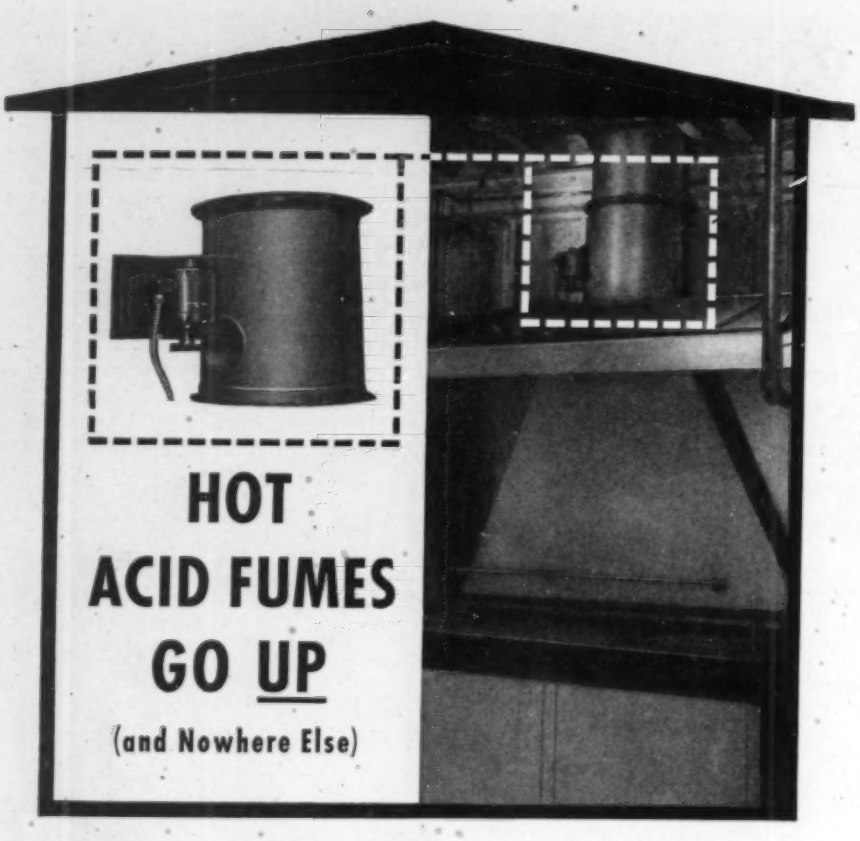

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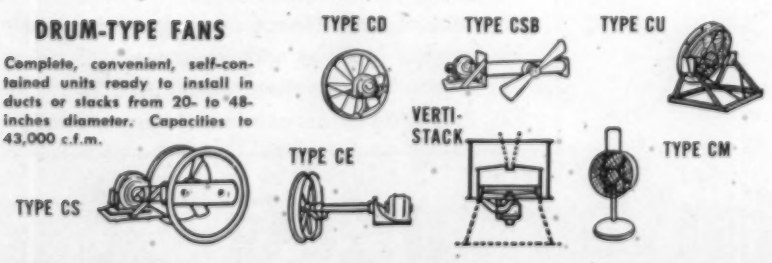


PROPELLAIR, Inc.
SPRINGFIELD · OHIO

THE RECORD REPORTS

(*Continued from page 12*)

for instance, show, even before the strike got under way, 52 per cent calling for gas, 21 per cent for oil and 27 per cent for coal. Officials, however, attribute the shift not so much to strike fears as to consumer objections to coal bins, to carting away ashes, etc. A limiting factor on the trend, as cited by the trade, is the tightness of equipment with too few oil burners on hand. Cited, too, is the variation of heating requirements according to areas. An increase in the availability of natural gas through use of pipelines, for example, would be a determining factor in the Northeast.

Legion Recommends

Following its November inquiry into the veterans' housing program, the American Legion's Special National Committee on Veterans' Housing submitted a lengthy and critical report to the Legion.

Its recommendations cover many fields of housing. Among highlights:

NHA and the office of Housing Expediter should be abolished;

FHA should be empowered to guarantee 100 per cent loans on homes to G.I.s up to $6,500 and to guarantee 100 per cent of the cost of construction of new multiple rental housing projects up to a total of $1 billion;

Rent control should be transferred to FHA;

FHA should draft a modern building code as a model for local governments;

Priorities should be abolished along with price ceilings on new construction;

CPA should maintain rigid controls on non-residential construction and district committees should have final say on non-residential applications;

The Veterans Administration should adopt a real estate appraisal system similar to FHA's;

Incentive payments and guaranteed market contracts should be discontinued.

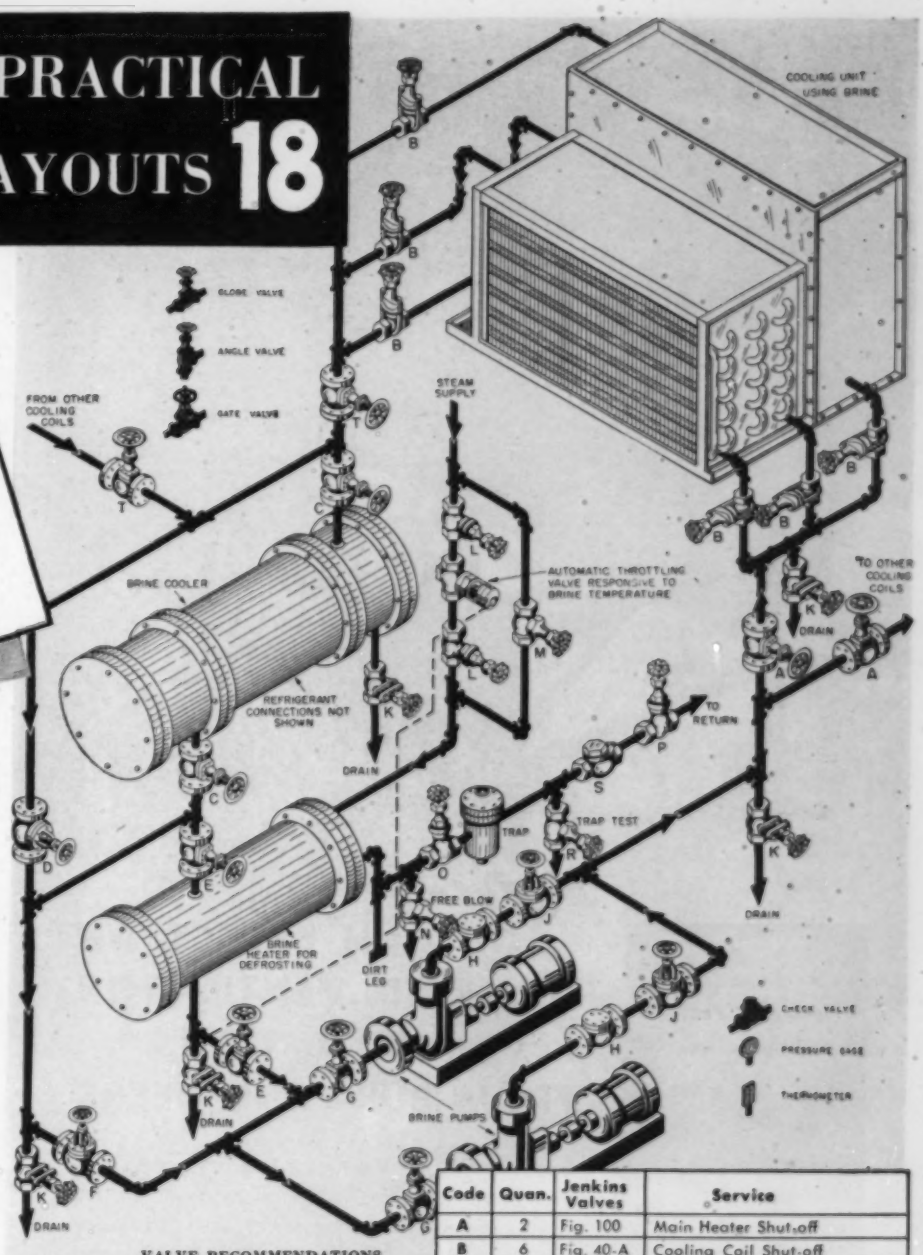
In its preliminary statement the Legion committee enumerates a long list of criticisms. Among other things it says that housing of veterans' families on farms is even more critical on a percentage basis of actual need than urban housing. Representatives of government and private groups at its sessions agreed that additional incentives must be provided to developers of rental housing.

Factory-built houses are criticized. Such houses, says the report, should help solve the veterans' problem on the basis of merit and competitive pricing and sales appeal without government assistance. "Representatives of government and business alike advised the committee," the report continues, "that in

(*Continued on page 16*)

Jenkins PRACTICAL PIPING LAYOUTS 18

How to plan a BRINE COOLING SYSTEM WITH AUXILIARY DEFROSTING UNIT



This brine cooling system is typical of many indirect refrigeration systems where cooling is not effected directly by the refrigerant.

Brine is used where the temperatures maintained fall below the freezing point of water . . . in cooling systems for fur storage, food storage and for many industrial applications. Defrosting of coils is accomplished by heating the brine and continuing its circulation. Thus, possible damage to coils by mechanical defrosting is avoided.

In normal operation the brine is pumped through cooling coils – the warm brine then returned to cooler where it is cooled in tubes by the refrigerant in brine cooler. Next it by-passes defroster and enters suction pumps. For defrosting, the brine cooler is by-passed and the brine is circulated through the defroster where it is heated. The heated brine is circulated through cooling unit until defrosting has taken place – then normal operation is resumed.

Consultation with accredited piping engineers and contactors is recommended when planning any major piping installations.

Copies of Layout No. 18, enlarged, with additional information, will be sent on request . . . also future Piping Layouts. Just mail coupon.

VALVE RECOMMENDATIONS
For details . . . and valves to suit varying conditions . . . see Jenkins Catalog.

Code	Quan.	Jenkins Valves	Service
A	2	Fig. 100	Main Heater Shut-off
B	6	Fig. 40-A	Cooling Coil Shut-off
C	2	Fig. 100	Brine Cooler Shut-off
D	1	Fig. 142*	Brine Cooler By-Pass
E	2	Fig. 100	Brine Heater Shut-off
F	1	Fig. 142*	Heater By-Pass
G	2	Fig. 100	Brine Pump Suction Shut-off
H	2	Fig. 295*	Pump discharge check
J	2	Fig. 142*	Pump discharge control
K	5	Fig. 75-A	Drains
L	2	Fig. 47	Steam Automatic Valve Shut-off
M	1	Fig. 106-A	Steam Automatic By-Pass
N	1	Fig. 106-A	Free blow
O	1	Fig. 47	Trap Shut-off
P	1	Fig. 47	Return Shut-off for Test Trap
R	1	Fig. 106-A	Trap Test
S	1	Fig. 92	Return Check
T	2	Fig. 100	Return lines from coolers
			*All Iron

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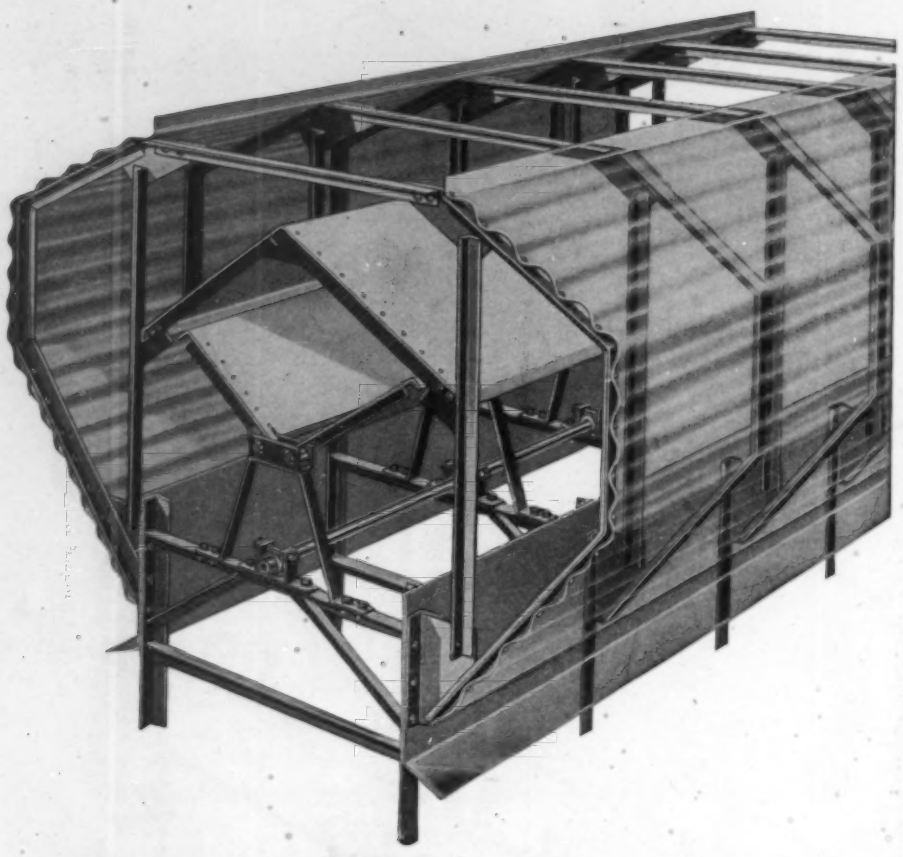

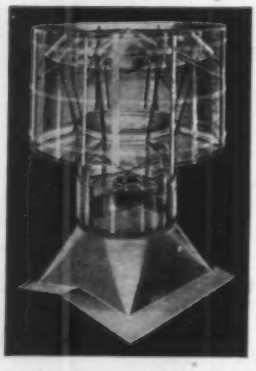

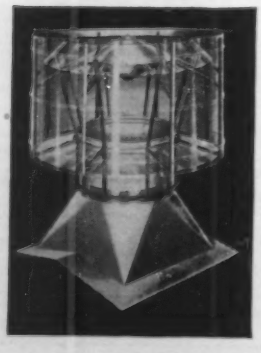

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THE RECORD REPORTS

(*Continued from page 14*)

the absence of strikes the production of all building items in 1947 would be sufficient to construct at least 1,500,000 new housing units."

Prefabricators Meet

At the winter meeting of the Prefabricated Home Manufacturers Institute in December, FHA Commissioner Raymond M. Foley pointed to the need for a broad public relations program directed at "unnecessary and unjustified restrictive policies and attitudes. In my opinion this is a time of testing for prefabrication and mass production in housing," he said.

Raymond F. Talbert, president of the Pittsburgh Home Savings and Loan Association, warned that the prefabricating industry must convince prospective purchasers and prospective lenders that it will not stand for excessive dealer profits and that it will produce at reasonable F.O.B. prices the type of homes which people generally will buy with pleasure and own with pride.

Judge Thurman Arnold, former Assistant Attorney General, urged united action by the building industry on a single labor program, touching on jurisdictional disputes, unproductive work, protective tariffs and obsolete methods. These practices, he said, are the weakest point of the building trades union.

Tyler S. Rogers, president of the Producers' Council, estimated that building materials would be sufficient in 1947 for prefabricators to reach their goal of 300,000 units.

Favor Research Board

Creation of a building construction research board as a technical clearing house of information was recommended at a post-election meeting of the U. S. Chamber's Construction Industry Advisory Council, which also called for removal of all government controls.

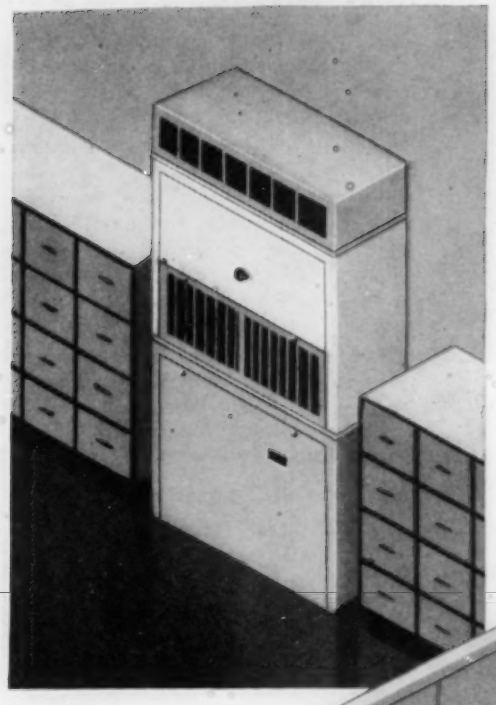
At this meeting James R. Edmunds of the American Institute of Architects urged adoption of "a definite, specific, integrated program" for expansion of the volume of construction. In a detailed discussion he recommended, among other things, "the cooperation of the design elements — and of contractors and workers."

It was at this meeting that Norman P. Mason, of the National Retail Lumber Dealers Association, announced an "Industry Engineered Home" in which his group is cooperating with the Producers' Council.

"The system employs a single modular standard unit measuring 16 by 24 ft.,"

(*Continued on page 18*)

Air Conditioning . . . Builder of Good Will and Business for Banks



Air conditioning is recognized today as an outstanding builder of good will and business for banks. The public prefers to conduct its summertime business in cool, refreshing comfort . . . where employees are more alert and efficient, and render better service. Packaged Air Conditioners, pioneered by Chrysler Airtemp, are ideal for banks and financial offices. They occupy little floor space, fit into any architect's plans and are easily installed, singly or in multiple as shown below. Operation is automatic and costs of operation and upkeep are low. For specifications, architects are invited to write . . . Airtemp Division of Chrysler Corporation, Dayton 1, Ohio • In Canada: Therm-O-Rite Products, Ltd., Toronto.

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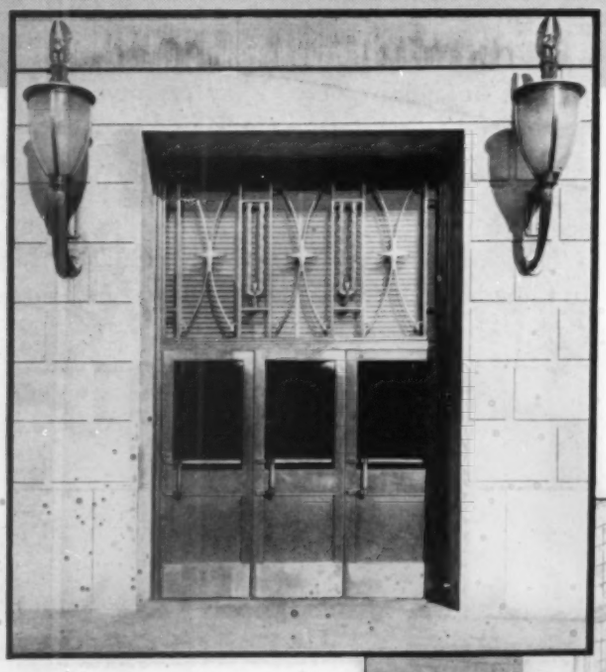

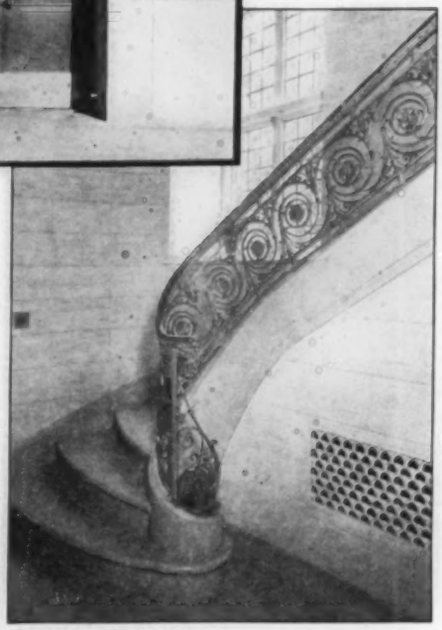

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THE RECORD REPORTS

(*Continued from page 16*)

Mr. Mason explained. "These units may be arranged side by side, end to end, side to end, or one over another, the number of units being used varying with the need of the owner. . . . Heating plants, plumbing, hardware, lighting fixtures and electric wiring, and interior finish woodwork can all be packaged for this basic unit. Packages will be separately designed for the various differing climatic areas depending upon the varying needs and customs. . . . This industry-engineered home is still in its experimental stages, but already it is apparent that the savings that can be effected are very real. . . . Some 250 manufacturers of varying kinds and types of building materials have indicated their interest in designing or packaging their materials for this program. . . . Right now, it is contemplated that actual homes will be under construction within six months."

Hospital Standards

The Federal Hospital Council has accepted the standards of construction and equipment drafted by the Office of Technical Services, Division of Hospital Facilities, U. S. Public Health Service. These standards, required by the Hospital Survey and Construction Act, will apply to all projects to be built with federal assistance under that legislation.

The standards constitute the minimum requirements considered necessary to insure properly planned and well constructed hospitals and health centers. Developed under the direction of Marshall Shaffer, head of the Office of Technical Services and author of the hospital planning studies published in the ARCHITECTURAL RECORD last June, July and August, the standards were approved by the Committee on Hospitalization and Public Health of the A.I.A. and a special technical committee on architectural standards appointed by the Federal Hospital Council.

❖ ❖ ❖

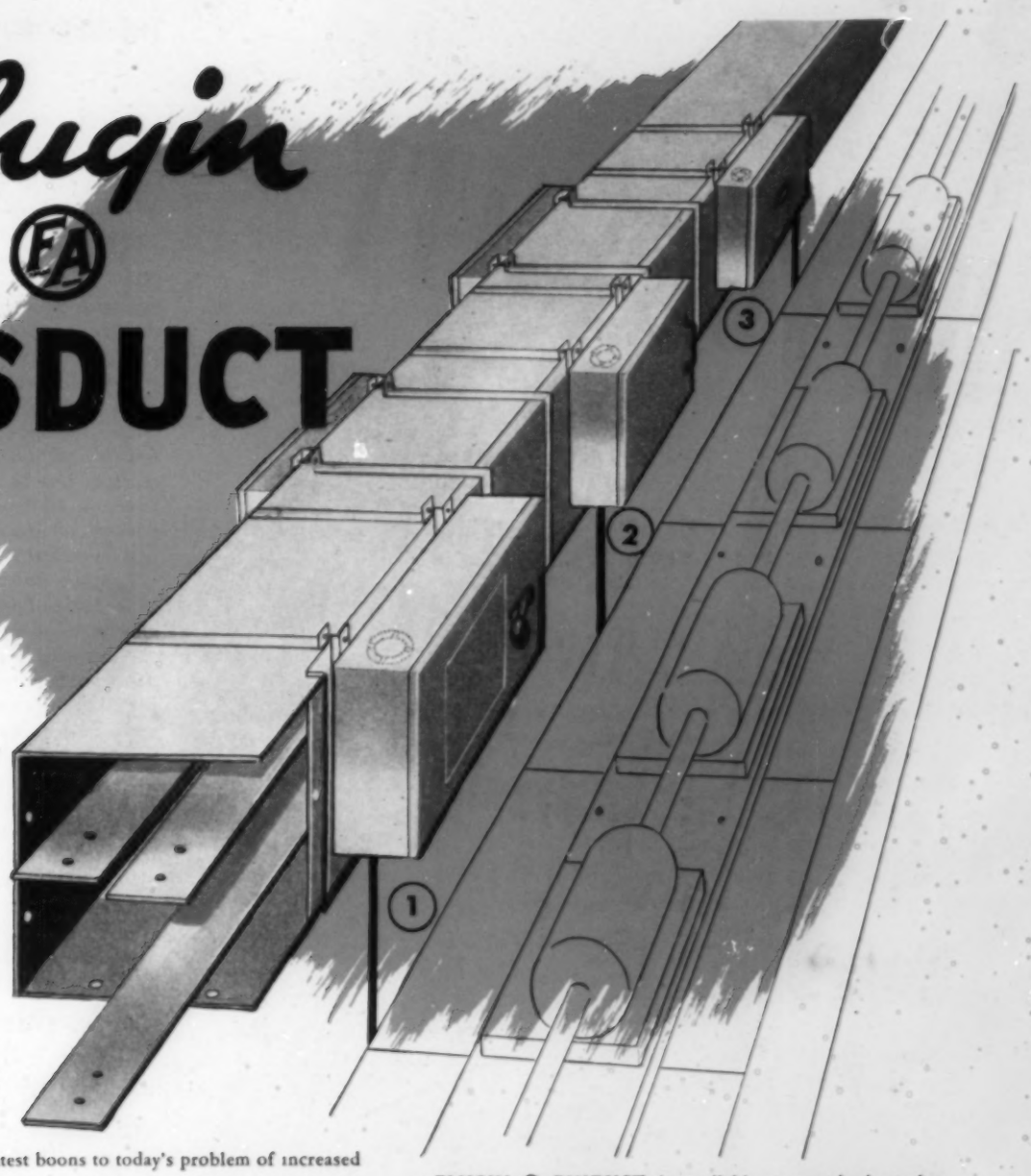
MATERIALS ROUNDUP

Asbestos: A world-wide shortage of asbestos fiber is reported by *Asbestos Magazine*. Principal shortage is in "shingle" grade used in a wide variety of asbestos-cement building products; acute shortage also of the very short grades used in manufacture of floor tile.

Asphalt Roofing: Asphalt shingles and roll roofing are being produced at the rate of 75 million squares a year, an all-time production high, according to figures of the Department of Commerce.

(*Continued on page 20*)

Plugin Ⓕ BUSDUCT



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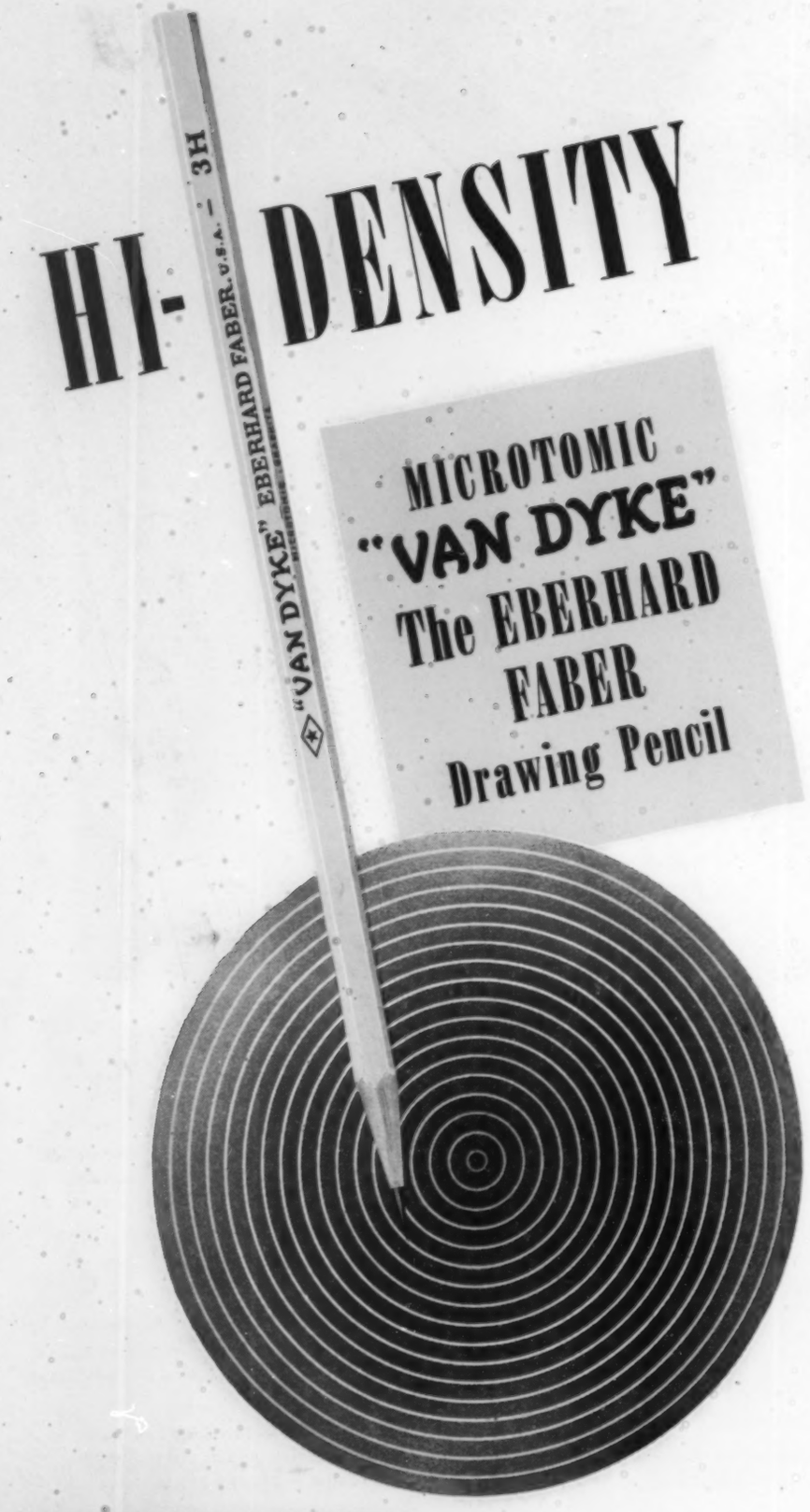

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THE RECORD REPORTS

(*Continued from page 18*)

Manufacturers are now feeding the building supply trade at the rate of one million more squares per month than in March, 1946.

Brick and Tile: Most critical production difficulties in the brick and tile industry have been overcome, reports the Structural Clay Products Industry. Production has reached "a rate well above all probable housing requirements, although the industry has a large back-log of orders which must be worked off before builders and contractors can be assured of prompt delivery in all localities." Prices for most part are not expected to rise above ceiling prices in effect up to time of decontrol.

Lumber: The 1946 production figure of 30 billion board feet was 19 per cent greater than the average yearly cut of the five-year period preceding the war. Stocks at both yards and mills are showing slight increases for the first time since 1941, reports the National Lumber Manufacturers Association.

Nails: If uninterrupted, the current high rate of nail shipments should in a few months relieve the widely reported shortage of this product, especially for the housing program, according to the American Iron and Steel Institute. During September, nail shipments were equivalent to the highest peacetime annual rate since 1923.

ON THE CALENDAR

January 9–11: Annual Meeting, Louisiana Engineering Society, New Orleans.

January 14–17: 1st national Materials Handling Exposition, Public Auditorium, Cleveland, Ohio.

January 23–26: 2nd Conference and Exhibit, Low-Pressure Division, The Society of the Plastics Industry, Edgewater Beach Hotel, Chicago.

January 25–31: 3rd annual plastics show and convention, Society of Plastics Engineers, Navy Pier, Chicago. Technical meeting, Congress Hotel, Chicago, January 27–31 only.

January 27–30: 28th Annual Convention, The Associated General Contractors of America, Inc., Stevens Hotel, Chicago.

January 27–31: 7th International Heating and Ventilating Exposition, Lakeside Hall, Cleveland, Ohio.

January 27–31: Electrical Engineering Exposition and Winter Convention, American Institute of Electrical Engineers, 71st Regiment Armory, New York City.

February 23: Opening, National Association of Home Builders Convention and Exposition.

March 22–27: Western Metal Con-

(*Continued on page 118*)

ARCHITECTURAL

RECORD

RENTAL HOUSING—PRIME PROBLEM IN 1947

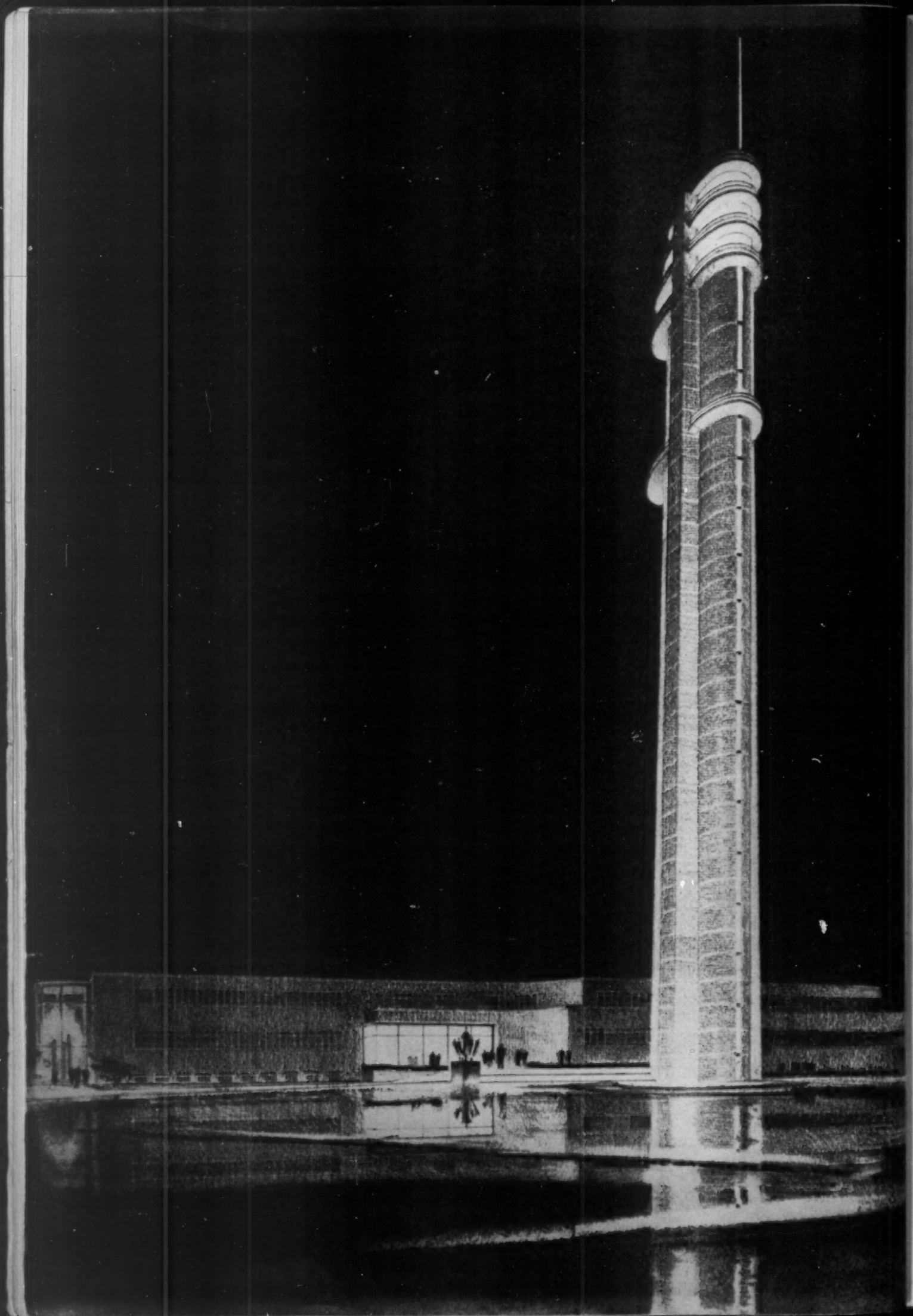
In spite of seeming to have a one-track mind and "sticking like a puppy to a root" on this one subject, we feel that rental housing must be thought of, talked of, planned for — by architects and engineers as well as realtors, producers, veterans and government. For it is the knotty question around which the entire building program revolves. The volume and kind of all building, the production and distribution of all building materials will depend largely on the controls or lack of controls involved in the housing programs now being formulated and advocated to meet our country's most pressing building need, rental housing.

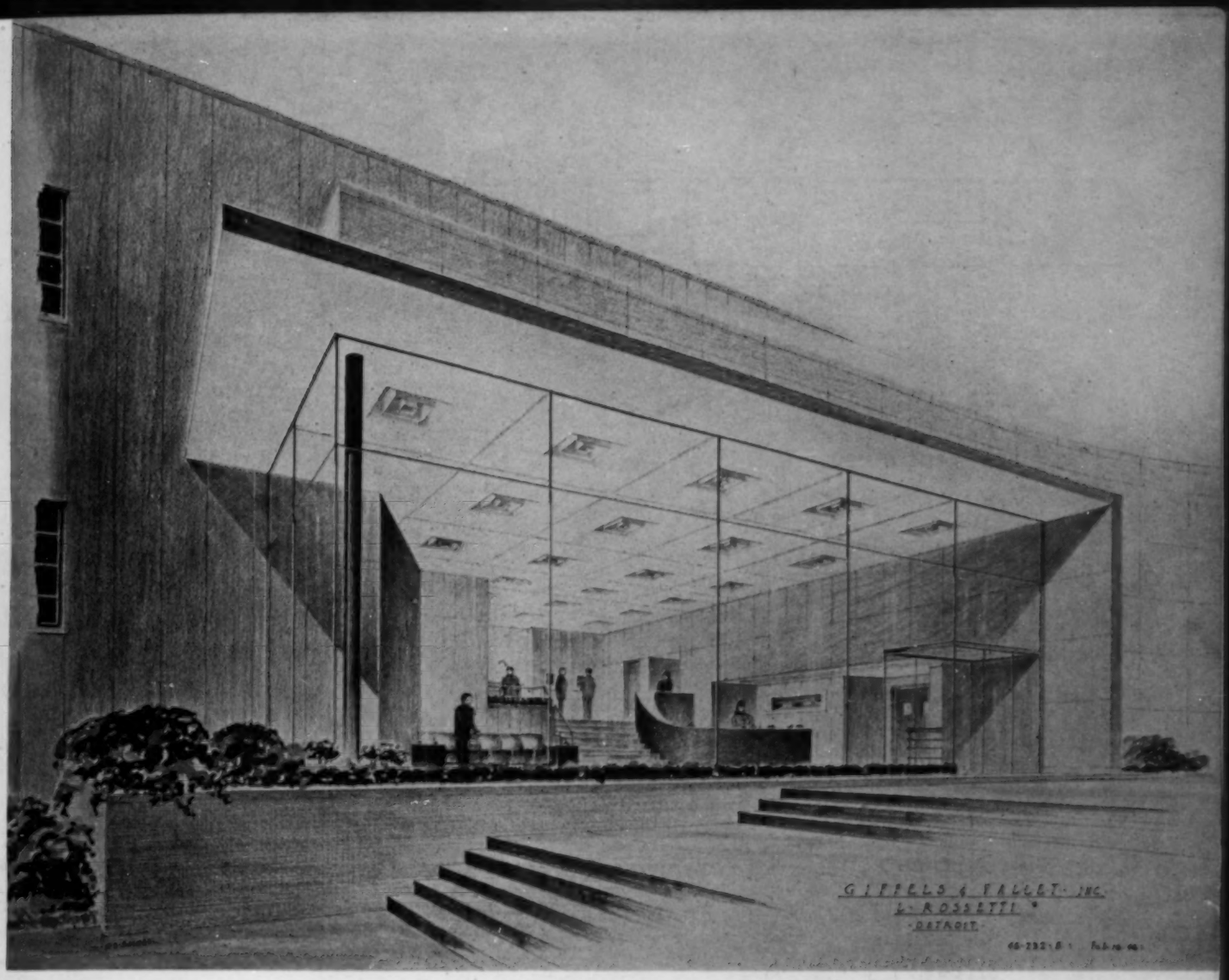
As 1946 — that year of confusion and frustration, over-controls and under-production, rainbow chasing and red tape — passes into the limbo of the glad-to-be-forgotten, the prospect brightens. We are confident that the new housing team of Raymond M. Foley (head of NHA) and Frank Creedon (Housing Expediter) will come up with a rental housing program that will merit and enlist the wholehearted cooperation of the building industry from financial interests (including RFC this time) to clamoring would-be-tenants. We hope such a program will see the light of day before this magazine is off the press. We believe that the new expediter and NHA chief will avoid tangent roads that have led nowhere and will stick to the main track by creating conditions that will provide *incentives* to all involved in the creation of rental housing. They have the advantage over the previous expediter because of their extensive knowledge and experience in the fields of construction and housing. Back in May last year when we launched the campaign for more rental housing, Mr. Wyatt promised "all possible encouragement" to the producers of rental housing. His successor can make good a like promise through a realistic and constructive program.

The task of framing such a program is no sinecure. Creating a plan in which free enterprise can and will operate to produce a maximum of rental housing in medium and low rental brackets at high construction costs and with critical materials still scarce still poses a complex problem. The total restrictive-control basis did not work; the question is now what minimum controls may be necessary and what positive incentives must be provided? The answer to this question will determine the size and nature of construction activity for 1947. The discussion of this question in all its aspects, economic, financial, political, commercial, technological and social, will therefore continue to be a major feature of our publishing program. What will happen to the projects now on your boards depends on the answer to the problem of rental housing.

Kenneth K. Stowell

EDITOR





FEDERAL TELECOMMUNICATION LABORATORY

Electronics Laboratory and Microwave Tower, Nutley, N. J., for Federal Telecommunication Laboratories, Inc.

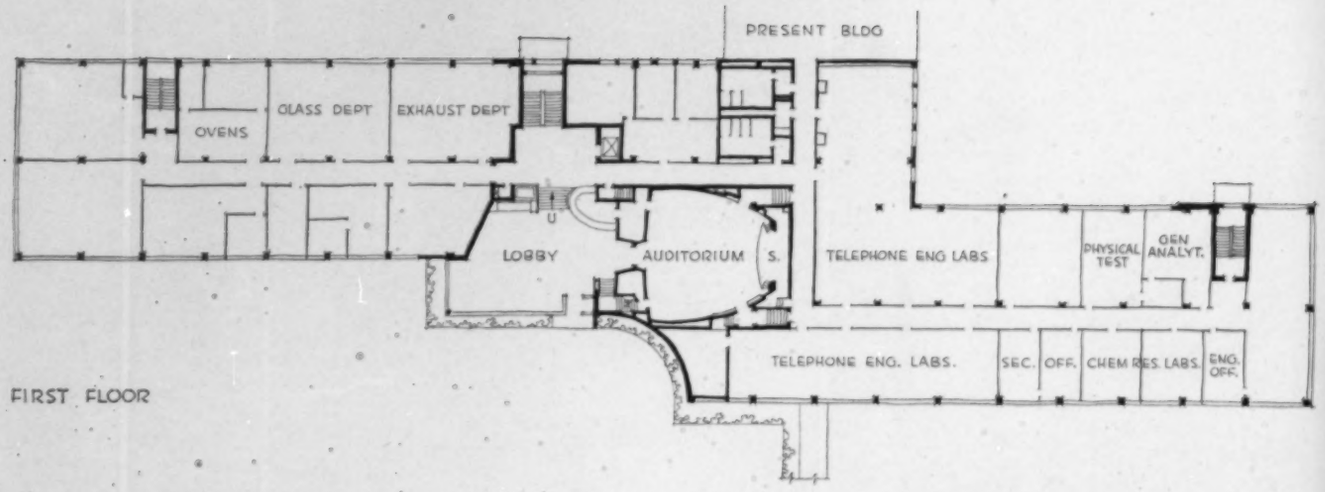
Giffels & Vallet, Inc., L. Rossetti, Engineers and Architects

WHEN research in electronics sets the pace for building designers, the pace is necessarily progressive. And those who must try to anticipate purposes and needs of a fast-moving science are bound to be infected by the heady mental audacity which surrounds it.

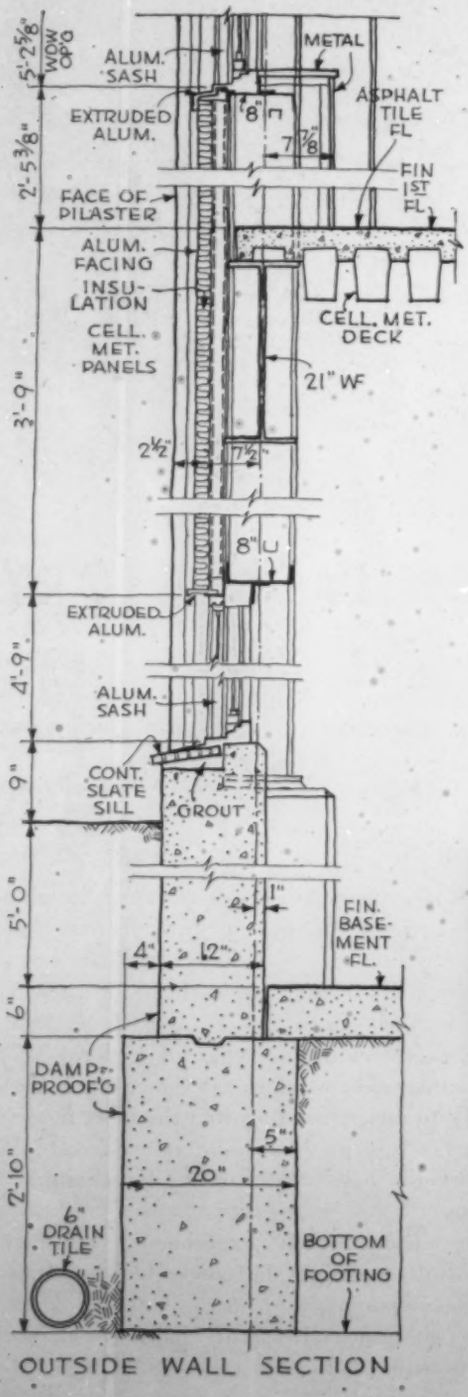
The rather spectacular tower, for example, grew naturally out of the needs for antenna research. It is a 300-ft.-high microwave laboratory. The balconies stacked up at its top, labeled "walkway" on the plans, are for experimentation with various antenna systems. That is, all except one; that one becomes a glass-enclosed lounge and refreshment room, where engineers, contacts and customers may pause to look over the Jersey flats at the skyscrapers of New York, and to realize the heights reached in their endeavors.

At the down-to-earth level the laboratory and manufacturing buildings represent notable advances in materials and construction techniques, all designed to provide flexibility in functioning, flexibility being the prime mandate for designers trying to plan ahead for a science that fairly shrieks of change. According to J. K. Whitteker, manager of technical service for Federal Telecommunication Laboratories, the designers had three objectives: (1) to make sure they had the most modern construction; (2) to achieve a maintenance-free building; (3) to provide extreme flexibility for changes in laboratory use.

Anticipating times when experiments on high-powered transmitters might be conducted simultaneously with development work on sensitive receiving and measuring equipment, it was decided to get as much isolation as possible in the disposition of wings. This



FIRST FLOOR



OUTSIDE WALL SECTION

decision also anticipates additions, which can be made without any restrictions of symmetry or limitations of site. Thus the model photograph shows the four units.

Basic requirements also pointed to the long, narrow dispositions. First, it was desirable to keep associated laboratories and offices close to each other; thus normally offices are opposite laboratories, across an off-set corridor which permits shallow office space and deeper laboratory units. This scheme also provides ample daylight and natural ventilation without air conditioning.

ALUMINUM-FACED WALL PANELS

The urge toward advanced building techniques that seemed inherent in this project found outlet in the use of one idea that has long been suggested but infrequently used (see ARCHITECTURAL RECORD, Oct. 1929, and Oct. 1946). This is the exterior wall panel of insulation and metal skin.

Here the wall panel consists of aluminum facing skin, Fiberglas insulation, paper backing, all with a cellular steel panel (Robertson Q panel), this system having been worked out especially for this building. The panels (see wall section and photograph, page 60) are 2 ft. wide, and are erected vertically, usually as spandrel sections. The aluminum has standard mill finish; it oxidizes somewhat, according to Mr. Whitteker, but seems to have a self-cleaning characteristic. He has noticed that occasionally it looks to have been cleaned, and attributes it to a polishing action of wind and dust.

The complete lack of any maintenance attention was one of the reasons for using the panel system; in fact the whole building was planned to be maintenance-free, inside and out. The only thing that requires any painting is some steel sash, bought when aluminum was not available.

Other reasons cited for the panel wall sections were: speed of erection, absence of muss and dirt on the job, labor saving at the site.

Much the same considerations led to the choice of the cellular steel floor system, though here there was an added reason of great importance. The provision of laboratory services, especially electrical wiring, is vastly easier with the cellular floors, which serve as built-in, continuous ducts to every square foot of the buildings.

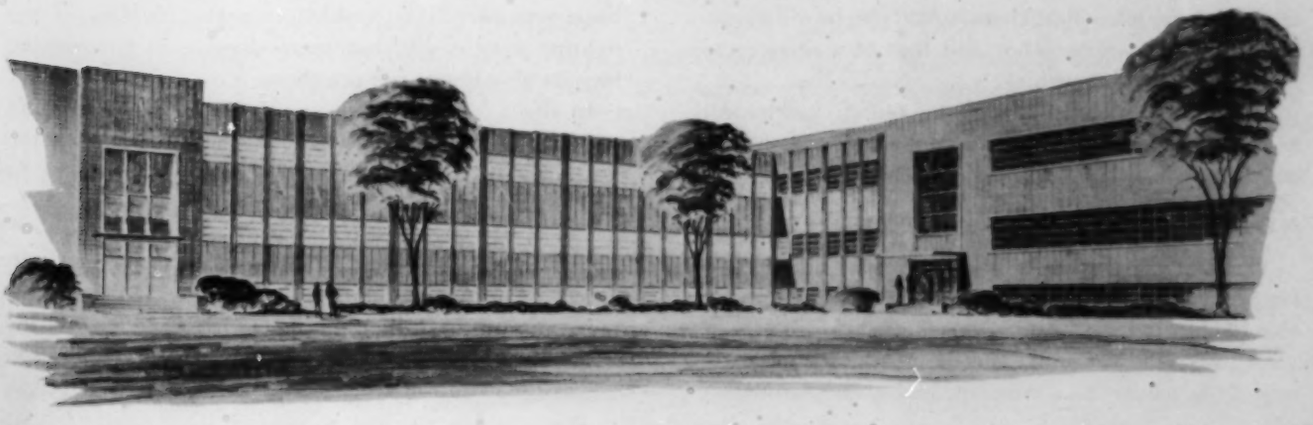
INEXPENSIVE LABORATORY SERVICES

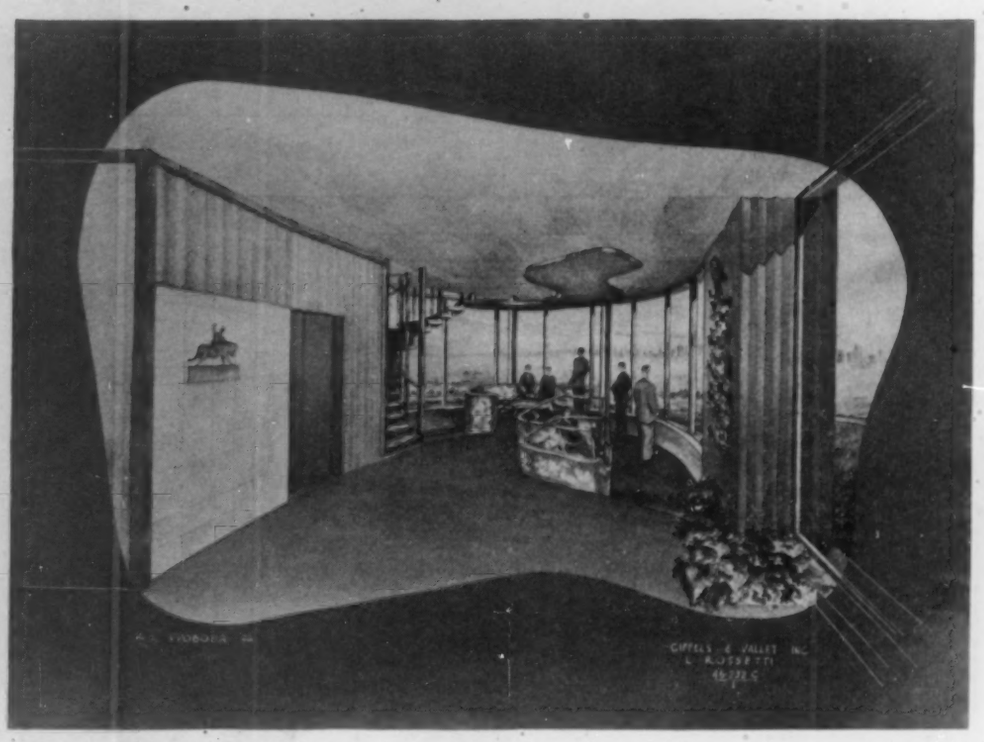
The problem of laboratory services — electricity, gas, water, oxygen, nitrogen, hydrogen, steam, and perhaps vacuum lines — is always, of course, basic in laboratory layout. All of these service lines must be available to all parts of the building — if not originally installed, accessible for quick and inexpensive connections.

Here considerable study was given to various methods of providing pipe stacks, but all were discarded in favor of no stacks at all! Built-in, fixed pipe shafts seemed to have a tendency to fix the location of laboratory benches, and the logical positions tended to be along partition walls, thus leading to difficulty in moving partitions. While there have been schemes to carry lines to interior locations in the rooms, these seemed unnecessarily expensive for this particular laboratory.

The designers sought instead a construction system which would permit pipes to be run anywhere without expensive alterations, and which would permit stacks to be built in at virtually any point, keeping partitions free of any service lines.

The scheme developed places service lines in the center of the building, just under the concrete surface of the cellular floor. Connecting lines can branch out through the floor at any point. They can run vertically from any location. So a new pipe shaft can be created





A great tower rising to 300 ft. over the New Jersey flats within sight of Manhattan's skyscrapers was an inspirational opportunity not to be resisted, so below the antenna laboratories for which the tower was built one floor was developed for a lounge. The far portion (in the rendering above) was dropped a few steps to form an observation gallery looking toward New York and the harbor

by simply enclosing the vertical runs in a casing of Transite. Removable acoustical pans obviate difficulty at the ceiling.

All interior walls and partitions, by the way, are of the Transite, so that, besides requiring no finishing, the walls and partitions are easily changed about as required.

This system of extending service lines is exceptionally desirable for an electrical laboratory. Whereas any of the more special services (gases, for example) might be needed at any location, normally they would not be required. So it was necessary to put in few at first, but vital that later extensions be possible at no more cost than originally required. Actually in one test it proved cheaper: an air line was run to a certain location for $500 less than in the original bid. If this sounds incredible, remember that there is likely to be a difference between construction labor and that of a service crew working for the laboratory.

The same difference might be found, incidentally, in matters of installing or moving partitions, particularly those which do not call for special skills.

MODULE SYSTEM AIDS FLEXIBILITY

The need for flexibility in a laboratory building goes far beyond the provision of service lines. There must also be unusual flexibility in space use.

In providing for that, the designers started with a module space division concept, and then planned and equipped the building to realize all possible advantages of the module method.

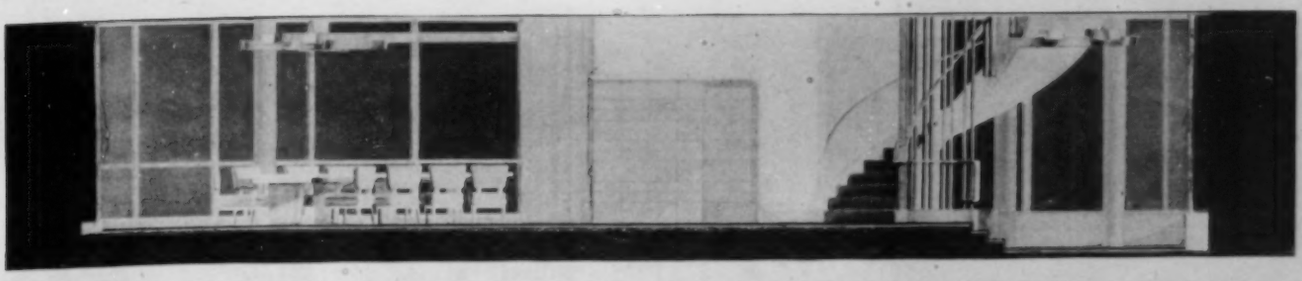
The space module was established at 6 ft. Obviously a room only 6 ft. wide would find little application, but a room of two modules, or 12 ft., would be suitable for many minor laboratory projects, or for the earlier stages of major ones. The 12 ft. unit would also be good for office space. The bay dimension was taken as 18 ft., or three modules, this working out well for the desired live floor load of 150 lb. per sq. ft. without involving heavy steel.

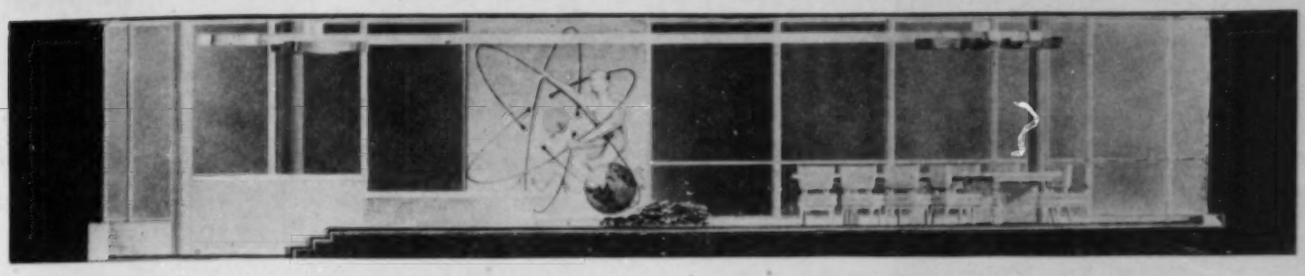
The module was respected in the placing of heating, lighting and sprinkler system, so that each module would be self-sufficient in these respects; in other words, module units could be combined in any desired arrangement without the need for any changes in these three basic services. It is possible to make changes in the lighting very easily, but mere changes in partitioning layouts should not require them.

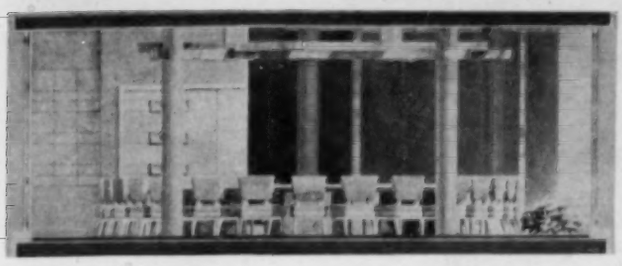
In effect, then, fixed positions for the basic building services, according to the module system, add to the flexibility of a free system of laboratory services to give maximum adaptability to changes in use.

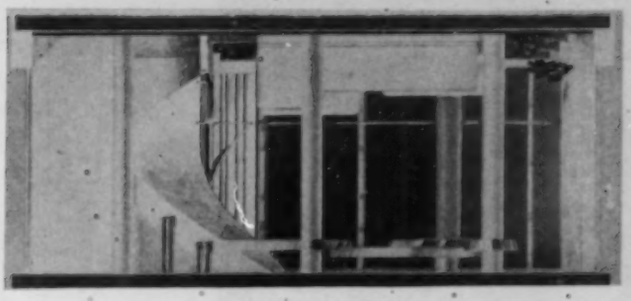
LIGHTING

The laboratory buildings were designed to provide the maximum natural illumination; in laboratory areas the window area is 1 sq. ft. for each 7.2 sq. ft. of floor; in offices the ratio is 1 to 6.









While the artificial lighting was laid out according to the 6-ft. module, provision was also made for complete flexibility within a unit. The basic lighting fixture unit is a fluorescent fixture with two 4-ft. tubes, set flush in a metal pan acoustical ceiling. The fixtures are the snap-in type, and utilize for suspension the same supports that carry the hung ceiling. It is a simple matter to remove two ceiling pan units, making a space 1 by 4 ft., and to add another lighting fixture at any location.

The original installation gives a general light intensity of 32 foot-candles, with negligible variation in distribution. While changes or additions are easily made, as indicated above, experience indicates that when greater illumination is required local lighting is more effective than general.

A variation from usual practice is to put the light switches in the corridor. There is a 2-ft. wall section at each column, which is not movable and is therefore a fixed position for switches. Partitions may be moved without involving electrical changes. The switches are, however, coordinated with the 6-ft. module system.

FIRE PROTECTION

The sprinkler system was the subject of especial attention, since there are few places where water would cause more loss in both time and money than in an electrical laboratory. And although the building is not inflammable, its contents were so rated, and insurance rates left a differential that warranted full protection.

The rate-of-rise system was installed to prevent unnecessary water damage. In this system the rate of temperature rise actuates the controls rather than some predetermined fixed temperature. Any abnormal temperature rise would start a chain of protection measures, eventually including the opening of sprinkler heads.

The chain is as follows:

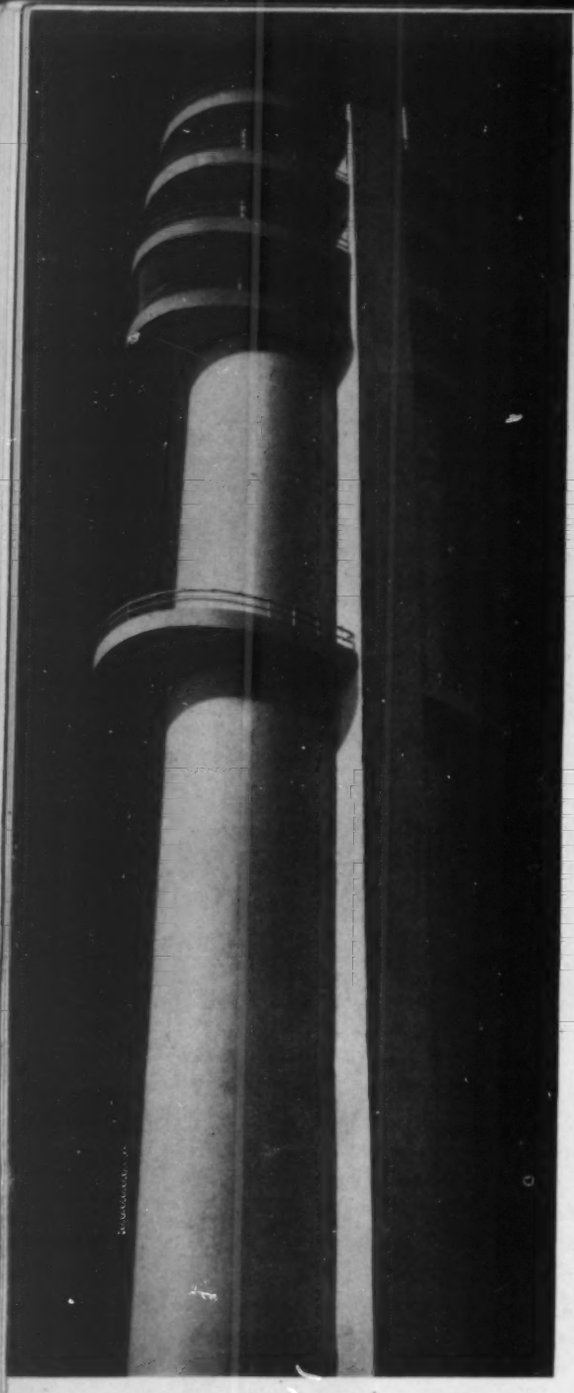
1. Fire is detected by rate-of-rise heat detectors.
2. An alarm is sounded, indicating in which fire zone the trouble is located.
3. Water is allowed to enter the sprinkler lines.
4. The water is held back until either:

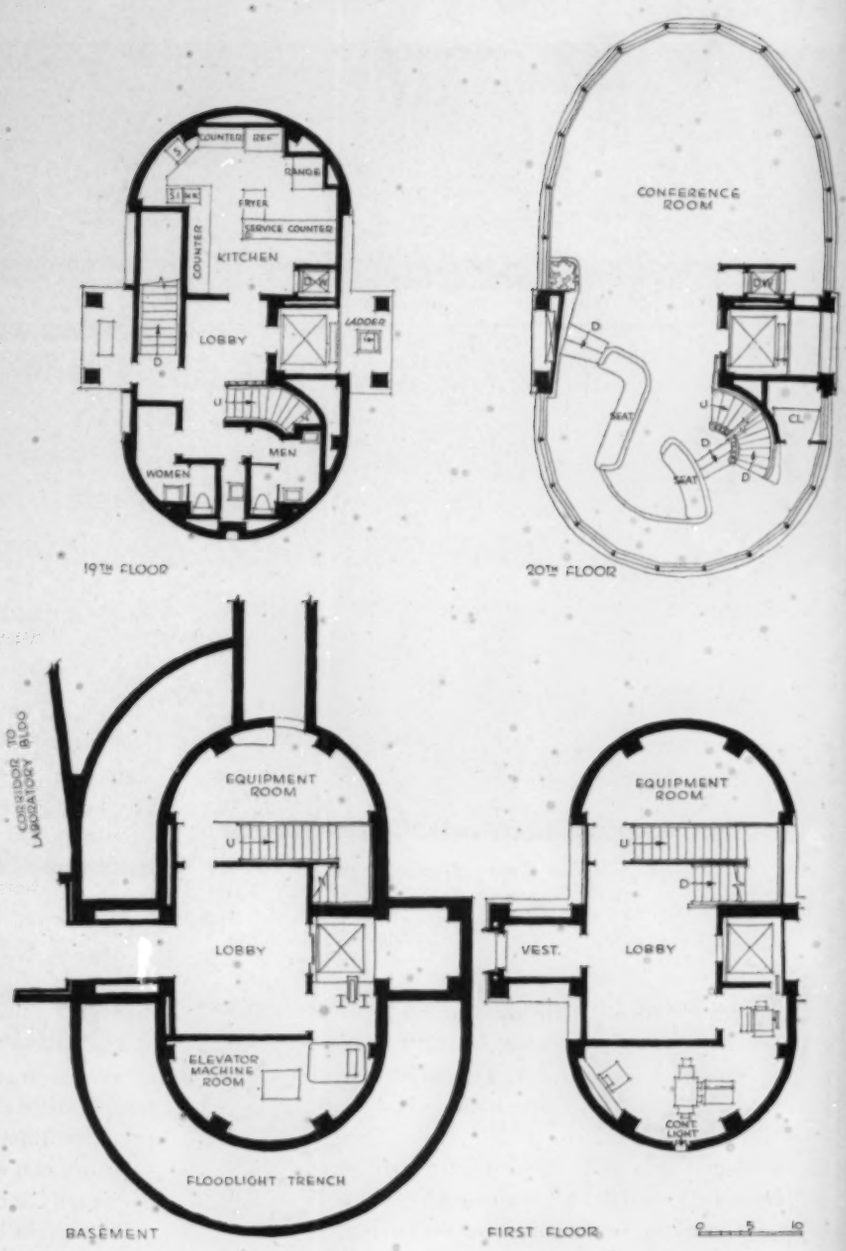
a. manual extinguishing efforts succeed, in which case the sprinkler heads do not open and water damage is prevented, or

b. the sprinkler links fuse and water goes to work.

A rate-of-rise system consists of heat actuated devices, one of which is located at the ceiling in each module, and is connected by copper tubing to a release in which there is a compensating vent. These devices constitute the thermo-pneumatic apparatus of the system.

In operation the heat from a fire develops an air pressure in the heat actuated devices, and this pressure is conveyed by the small copper tubing to act against the diaphragm of the release, the mechanical motion of which can be used to operate alarms, valves, and other devices. The compensating vent prevents opera-



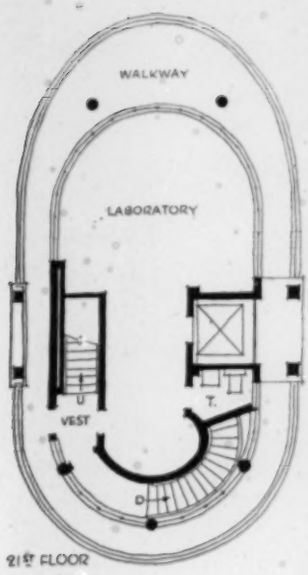


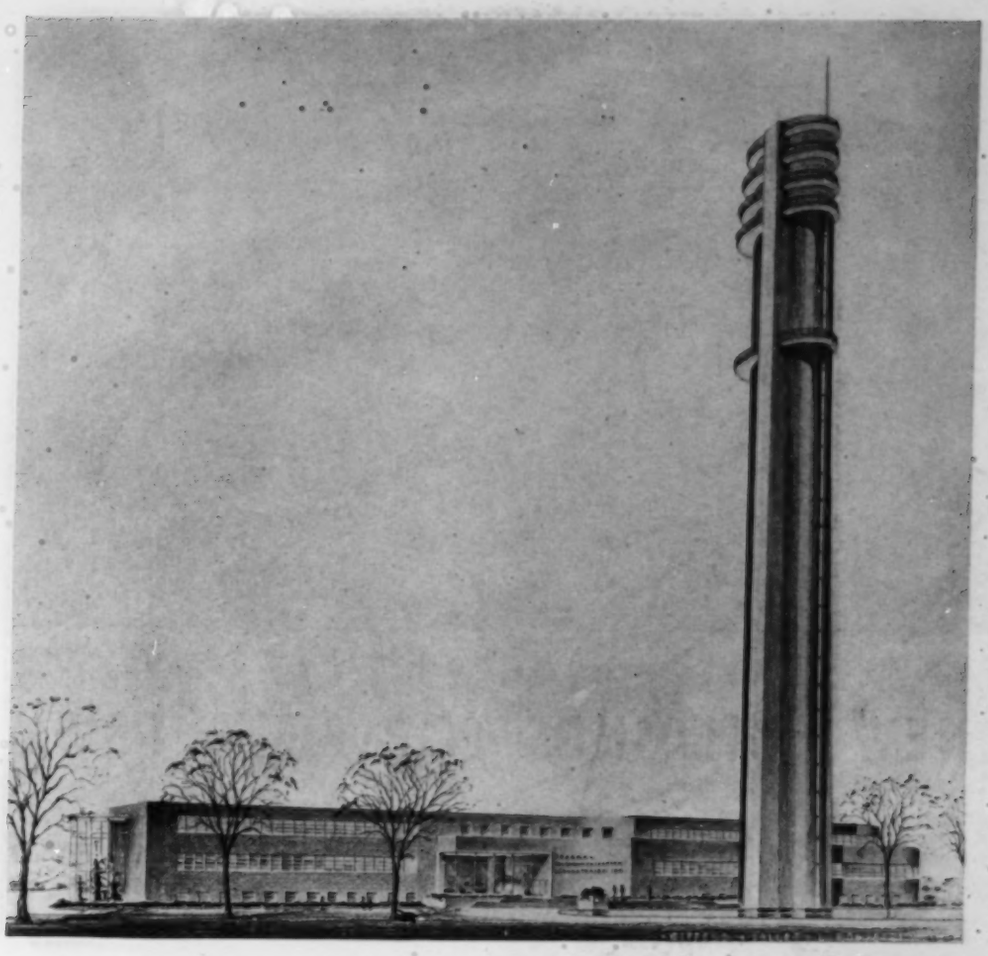
tion from normal temperature changes such as occur in the heating of the building.

One possible difficulty with this system was foreseen: should a break occur in one of the copper tubes that particular unit would be inoperative. To overcome this a supervision feature was added which depends on 1½ pounds of air pressure being maintained in the heat actuated devices and their connecting tubing. This pressure is automatically maintained by means of a small electrically driven pump. Should a break in the line occur a drop in air pressure would immediately sound a trouble alarm.

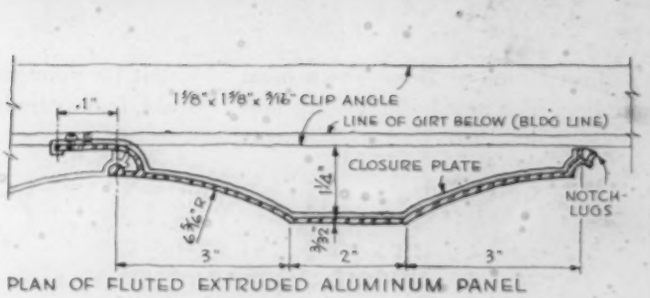
By extending the use of compressed air to the sprinkler lines and up to the sprinkler head the same trouble information was obtainable. Thus, if a sprinkler head is damaged or a pipe broken, an alarm is sounded. Further, since there is no water in the lines, except during a fire, damage to the system due to freezing is eliminated as is also accidental water damage.

There are a total of 60 zones in the four buildings and heat actuated devices are set for alarm at a rate of rise of 15° F/min. In the event of a slow fire a fusible link in the sprinkler head operates at the same temperature. It was believed that most laboratory fires would be due to short circuits and, therefore, when the heat actuated device operates, it cuts off power to the building in which the fire is located and turns on an emergency lighting system.

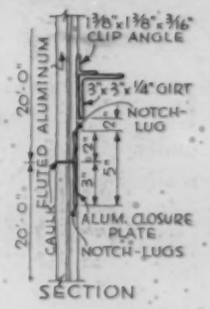




Matching the aluminum-faced wall panels of the laboratory buildings is the shiny skin to the microwave tower. Fluted aluminum panels encase the steel frame. The panels, 8 in. wide and 20 ft. high, are formed by extrusion. Plan and section of panels (right) show how panels lock each other in place and attach to frame



PLAN OF FLUTED EXTRUDED ALUMINUM PANEL



SECTION

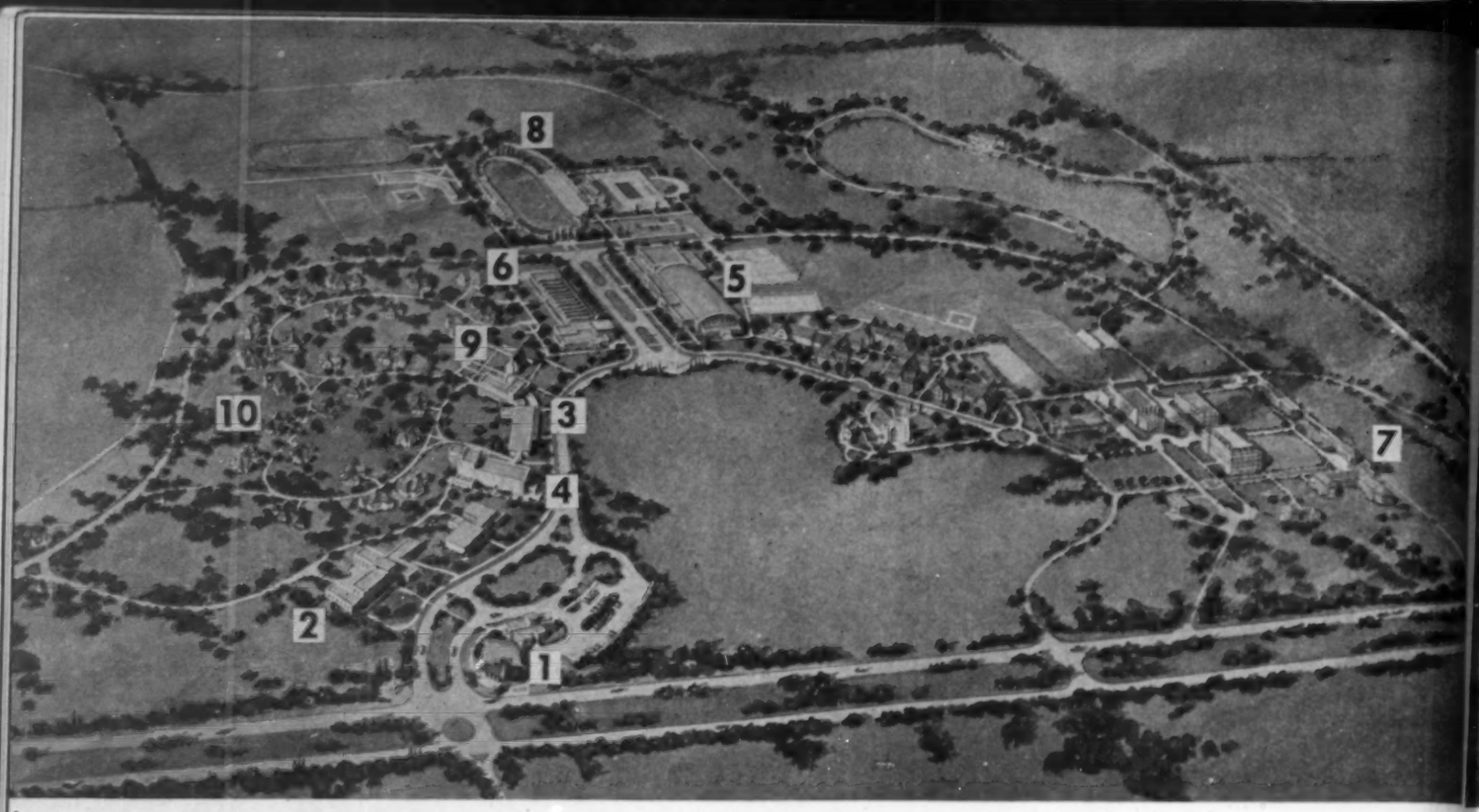
MICROWAVE TOWER

Something new in architectural forms is the antenna tower. It is not, it must be added hastily, something inherent in electronics operation, and is not likely to be seen in any quantity, for it is strictly a laboratory item. Indeed it is itself a laboratory. A bit more specifically, it is for the testing of short-wave antenna systems, especially in the fields of transcontinental electronic cable tower systems such as will some day carry television chain programs across the country, or might replace wire communication systems, and the field of pulse-time radio systems, those which would bring eight separate programs to a single radio set.

The 300-ft. aluminum-faced tower, with its access balconies for antenna work, replaces an existing 212-ft. wooden tower now being used for research.

There was some discussion of doing the tower in reinforced concrete, but here again the urge to newer designs led to a steel framed tower with an aluminum facing. This facing is a 20-ft. panel of extruded aluminum, in fluted form, 8 in. wide (details, above).

Purpose of the tower is purely access to great heights, the useful space being solely at the top, where there are two laboratory floors with balcony walkways for handling experimental antennas, and a lounge and restaurant floor, served by a kitchen just below. The tower structure will be illuminated at night by vertical bands of neon lights.



NEW BUILDINGS FOR BOYS TOWN, NEBRASKA

Leo A. Daly Company

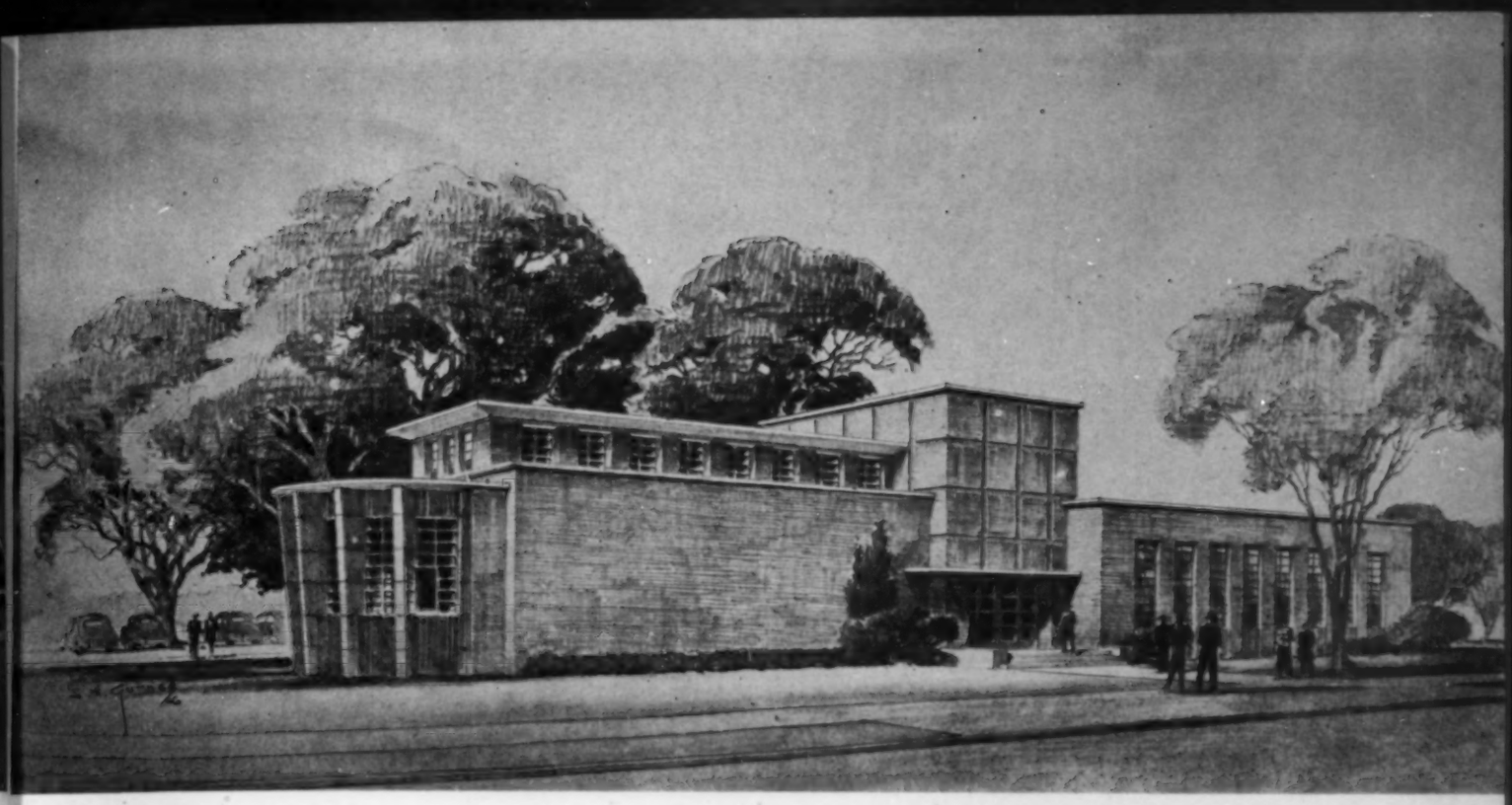
Architects

FATHER Flanagan's Boys Home at Boys Town must expand. It is expanding. The new buildings are now under construction. Back in 1940 Father Flanagan realized that the war and its aftermath would bring unprecedented demands for the protective care of homeless, neglected and wayward boys — the service that his institution has been rendering for some thirty years. Young boys, he feels, are as truly war casualties as the battle lists, victims of disrupted home conditions caused by the war — parental neglect, death, divorce, social and moral la , engendered by wartime psychology. He decided, therefore, to establish a separate unit for youngsters ranging from eight to twelve years old, four years below the previous minimum age for admission.

The existing Boys Town facilities are to be turned over to these grade-school age lads and the new buildings and facilities, shown here in part, are to be devoted to making good citizens of the high-school age group. A new faculty residence group, including a guest lodge, and a farm group (not shown in the perspective above), are part of the present building program. Also to be constructed are the swimming pool, the clinic, a little theater and an outdoor theater.

Left, sketch of entrance features. Above, aerial perspective indicating new buildings; numbers refer to buildings shown herewith, viz.:

1. ***Reception Center***
2. ***Administration and Welfare***
3. ***High School***
4. ***Auditorium***
5. ***Field House***
6. ***Trade School***
7. ***Power House***
8. ***Stadium***
9. ***Dining Hall***
10. ***Boys' Cottages***



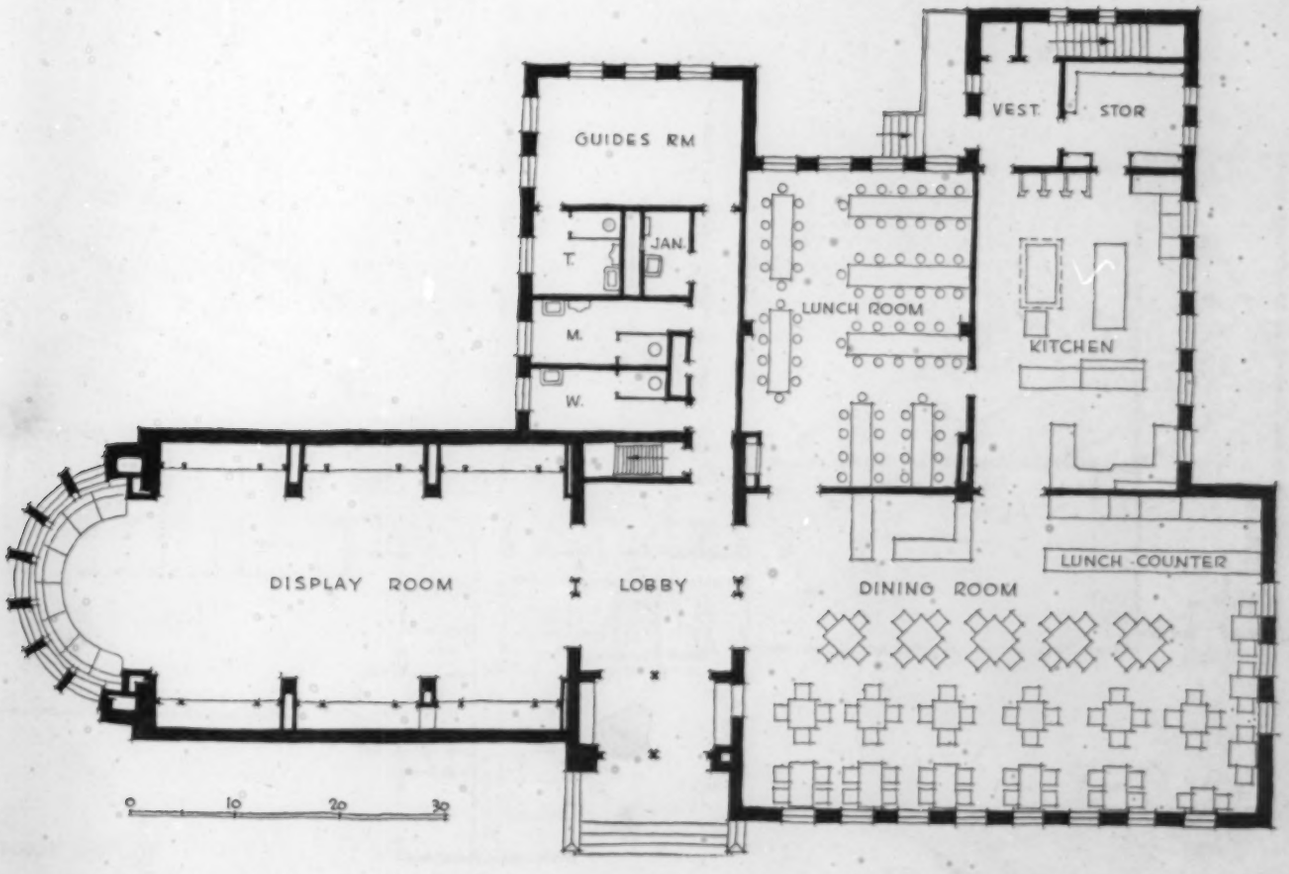
The expansion program now under way will provide facilities for a total of 1000 boys instead of the 450 now accommodated. The expenditure for buildings and equipment is expected to involve some $6,000,000. It is hoped that the new construction can be finished within the year. The Reception Center is designed for the reception of visitors and for the convenience and entertainment of the public rather than for receiving new boys

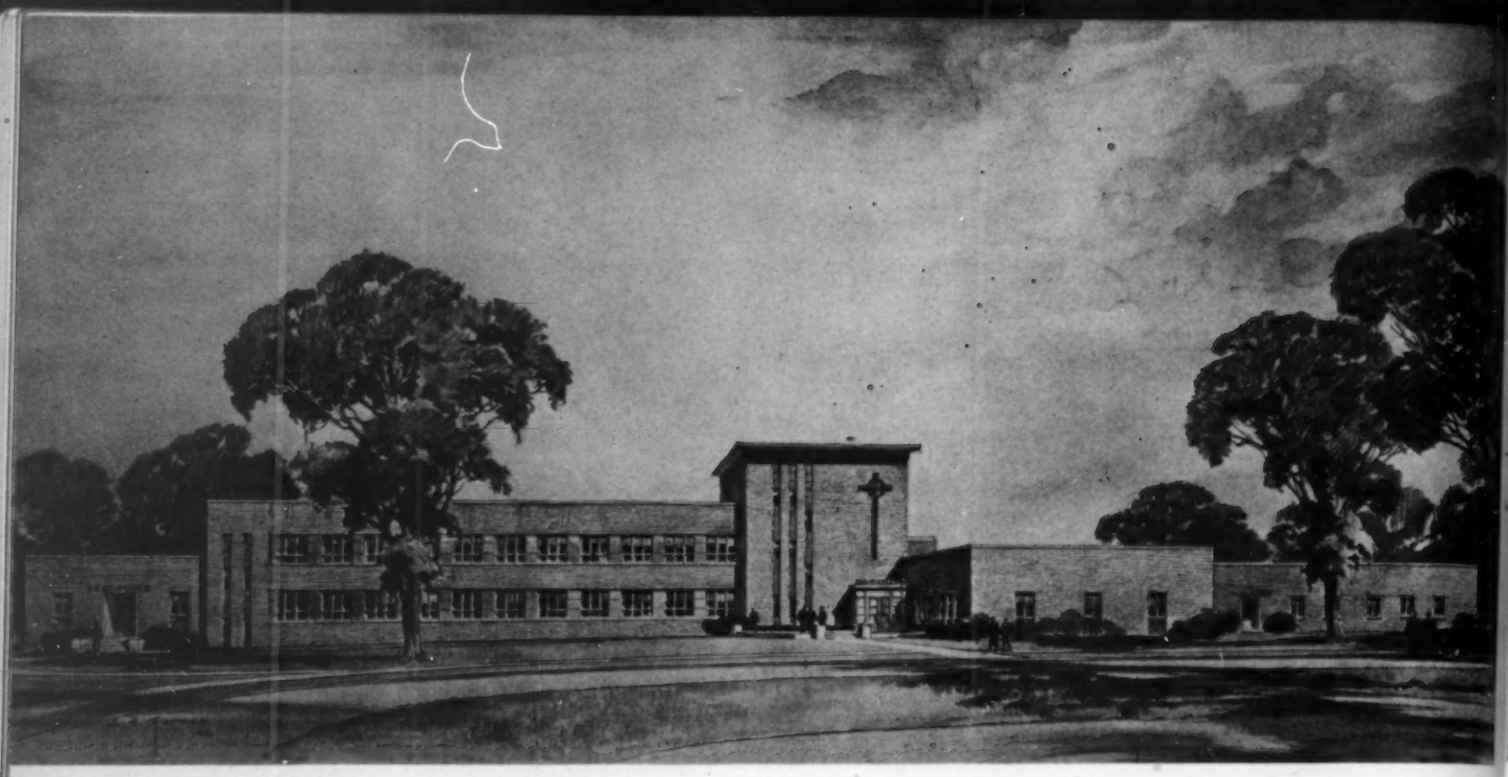
1

RECEPTION CENTER

BOYS TOWN, NEBRASKA

Leo A. Daly Co., Architects





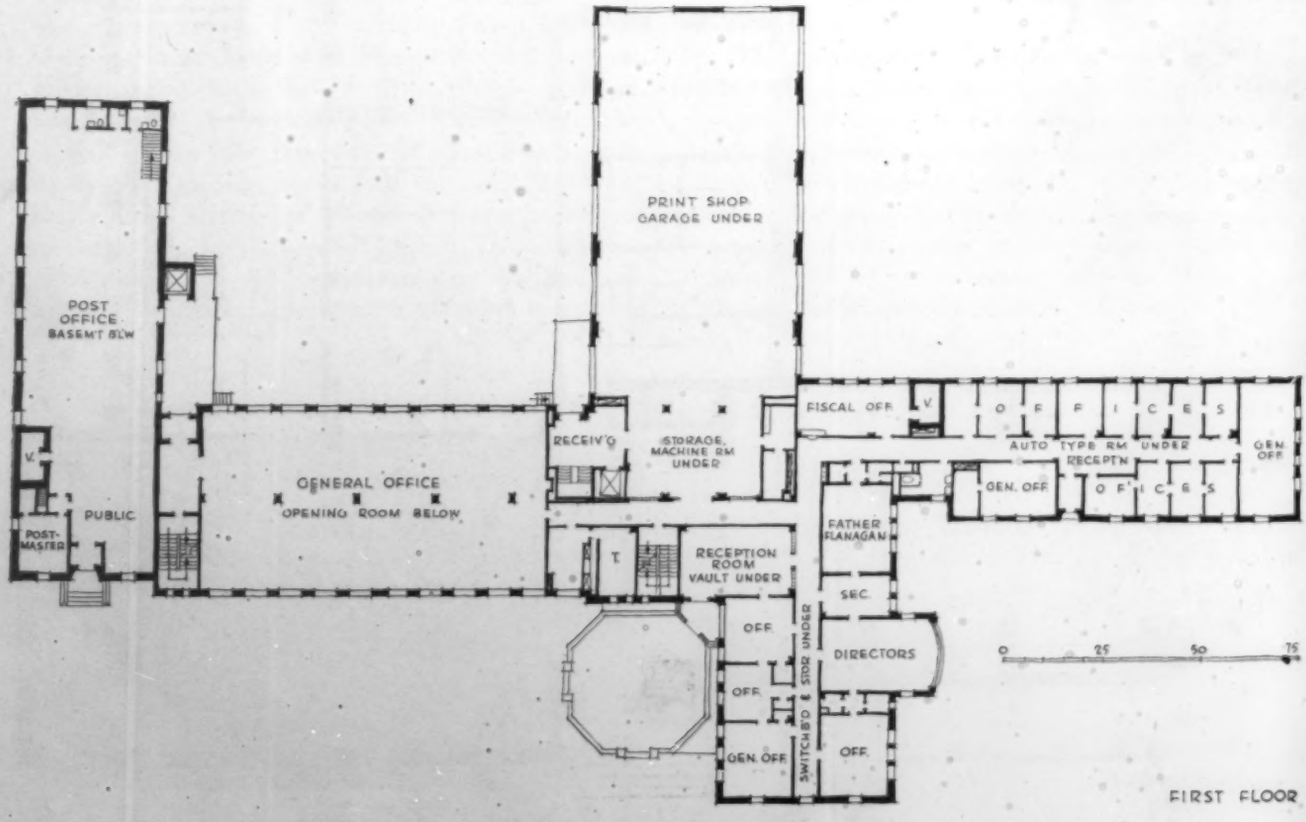
2

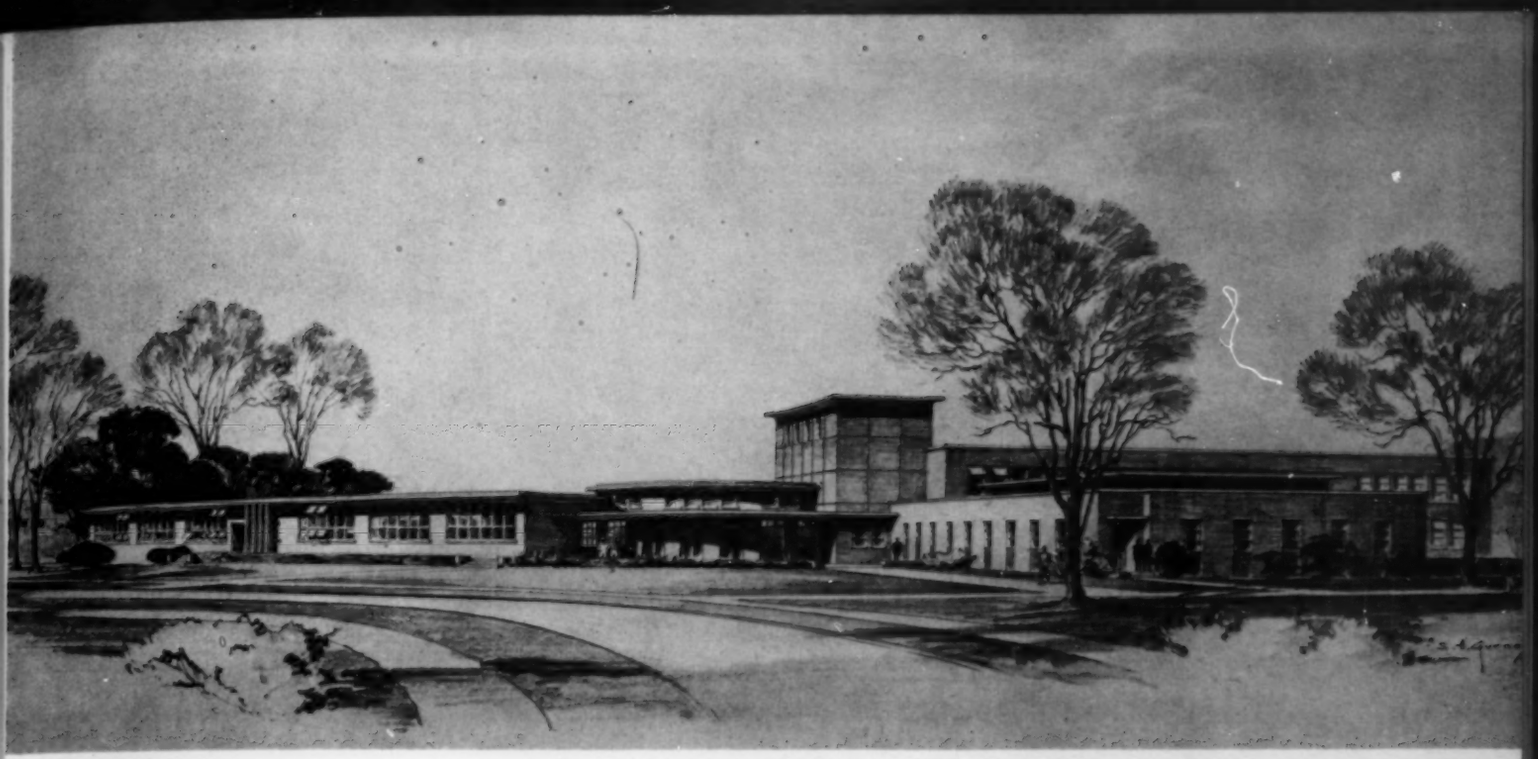
ADMINISTRATION AND WELFARE

BOYS TOWN, NEBRASKA

Leo A. Daly Co., Architects

An institution as large as Boys Town is a sizable financial and administrative project as well as a social and educational enterprise and requires efficient organization and operation. These latter functions are grouped in this Administration building, with the offices of the founder and director, The Right Rev. Msgr. Edward Joseph Flanagan, and his staff. General offices, the post office, and the print shop are housed in the building also and a garage is conveniently located under the print shop





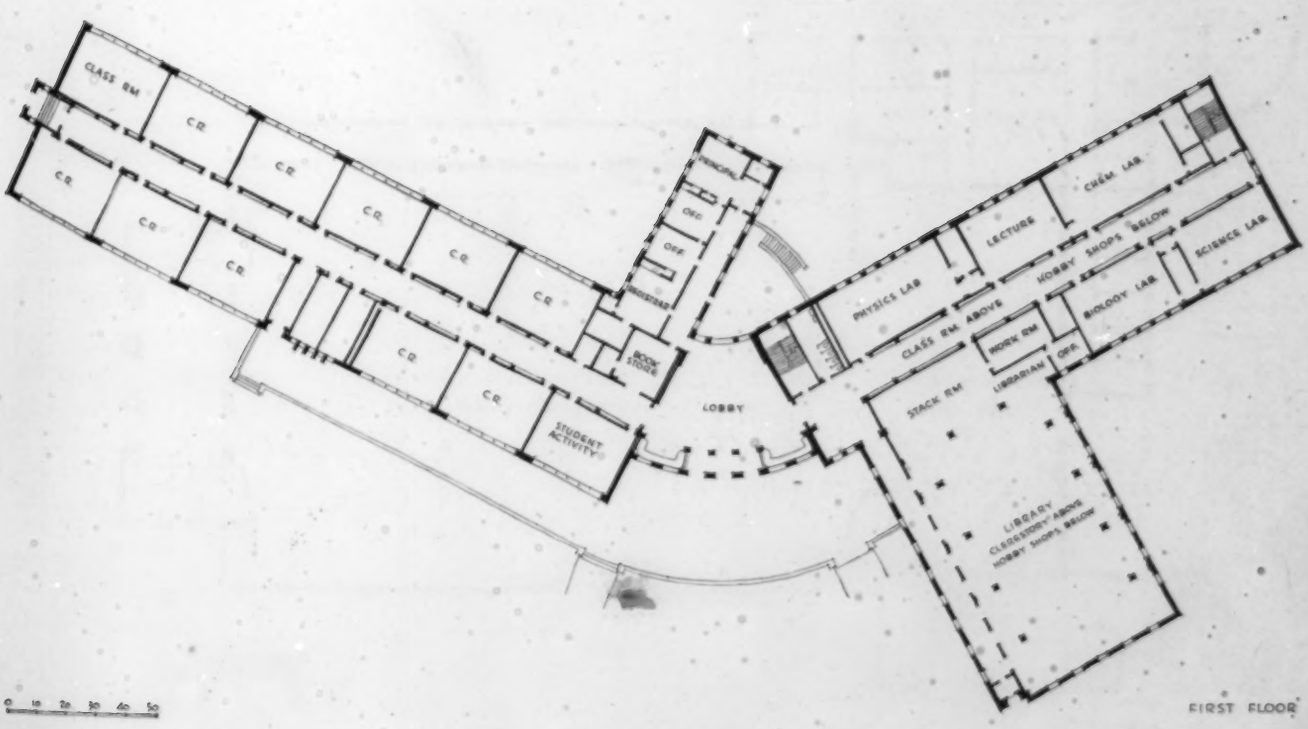
A well equipped high school for 500 pupils is an essential part of the program at Boys Town. The new building provides some 14 recitation rooms, the library, and the laboratories for physics, chemistry, biology and general science, with their lecture room. Above the laboratories are the art room, drafting room and the bookkeeping, typing and manual training rooms. In the basement are no less than 12 hobby shops. School offices and a student activity room are adjacent to the main lobby

3

HIGH SCHOOL

BOYS TOWN, NEBRASKA

Leo A. Daly Co., Architects



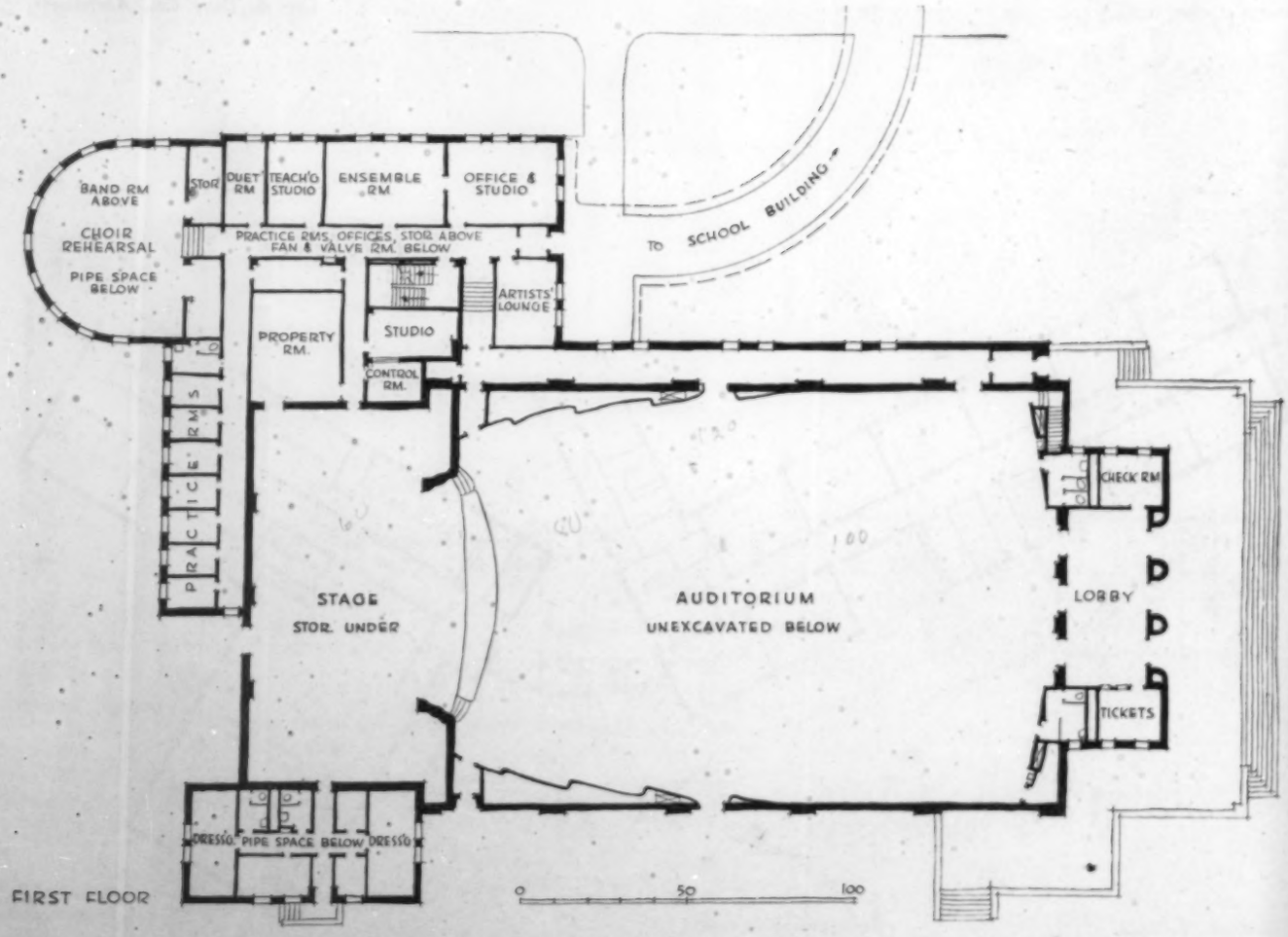
4

AUDITORIUM

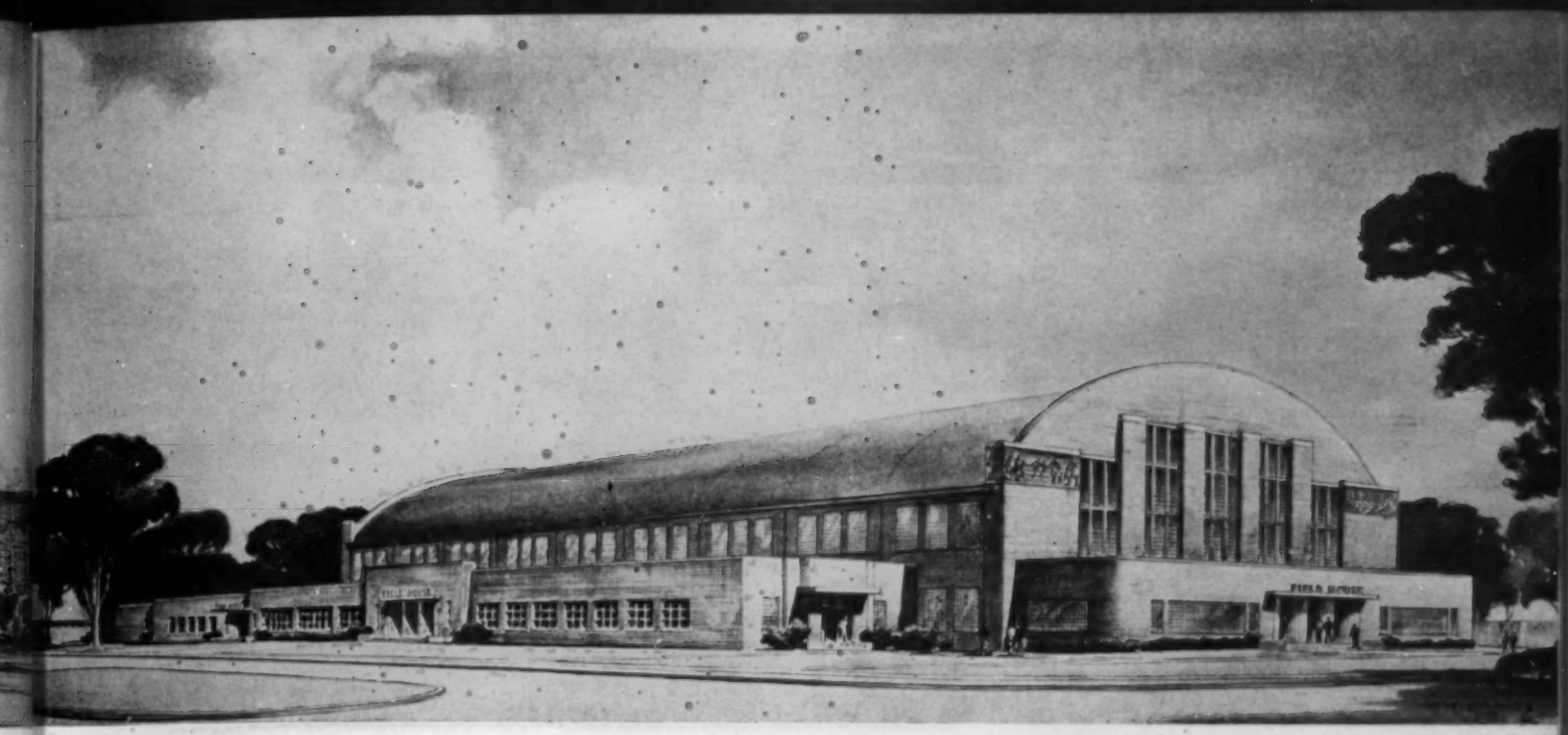
BOYS TOWN, NEBRASKA

Leo A. Daly Co., Architects

From the high school a curved covered walk leads to the auditorium building, directly to the music rooms which adjoin the stage. The music department boasts a semi-circular bandroom above the rehearsal room of the celebrated Boys Town Choir. In addition to teaching and ensemble rooms there are 15 small individual practice rooms in this two-story wing. The auditorium seats 1200 and is designed for assemblies, musicals, and lectures rather than for elaborate theatricals



FIRST FLOOR



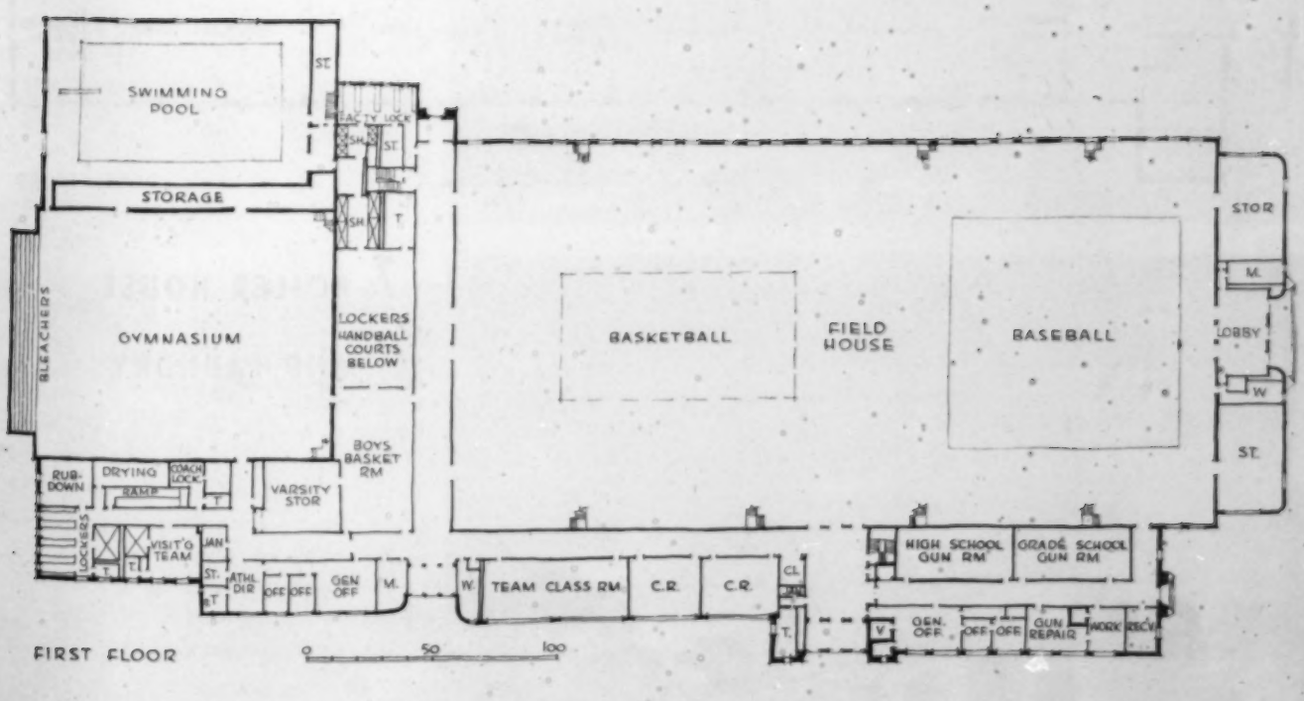
Complete indoor athletic facilities will be provided in a great Field House, which has three main parts, the largest having an earth play floor 300 by 150 ft., with permanent bleachers on both long sides which seat 2000 spectators. Additional temporary seating will accommodate 4000. The gym floor provides two basketball courts. There are eight handball courts and facilities for boxing and wrestling, as well as R.O.T.C. and intramural activities. The swimming pool is to be 42 by 75 ft.

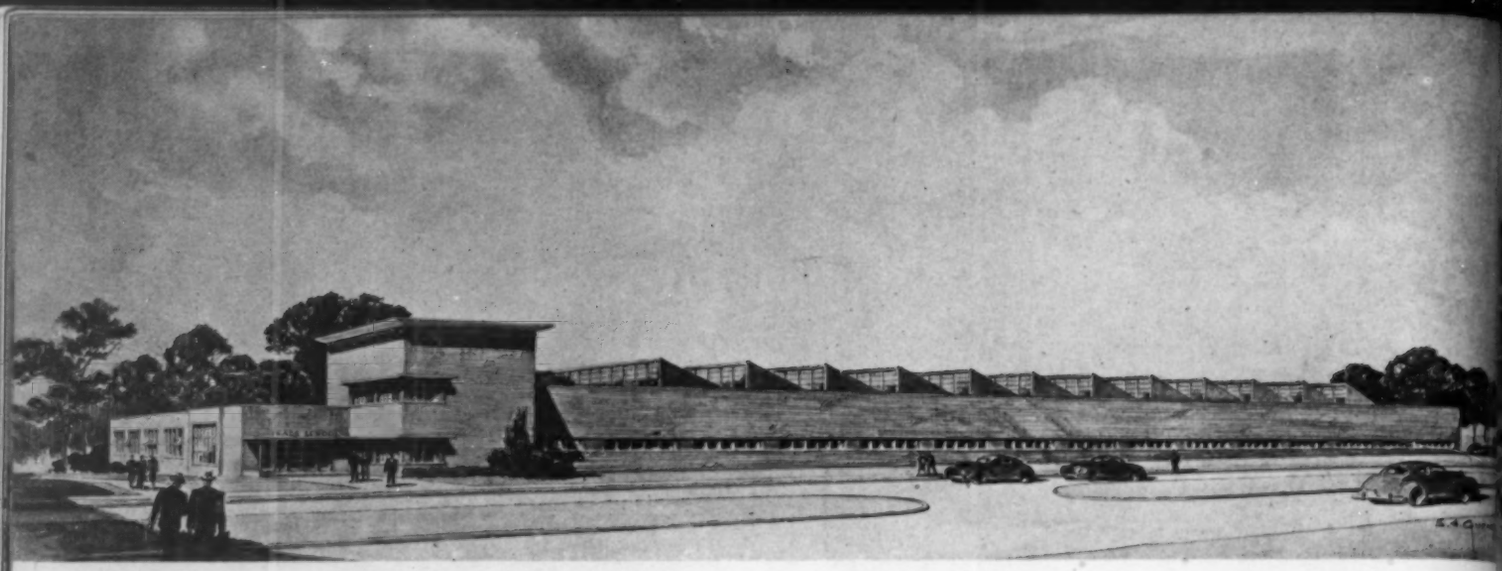
5

FIELD HOUSE

BOYS TOWN, NEBRASKA

Leo A. Daly Co., Architects





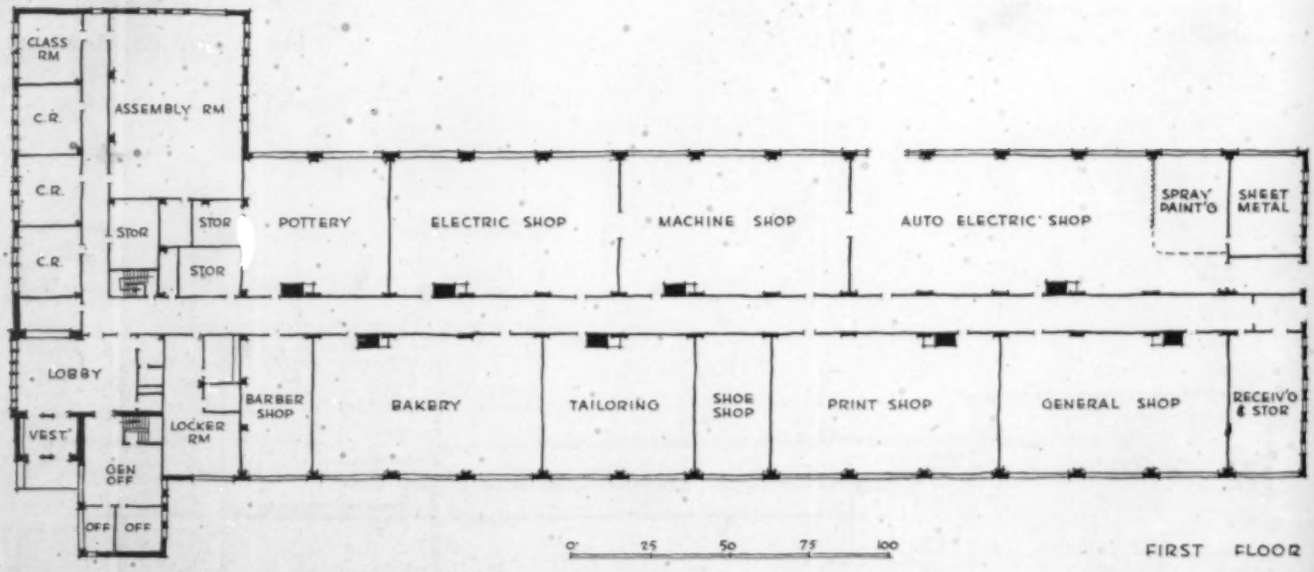
6

TRADE SCHOOL

BOYS TOWN, NEBRASKA

Leo A. Daly Co., Architects

Technical and vocational training in the shops of the Trade School supplements the general and cultural education. Here boys learn by doing, and how to earn a living at a trade or craft is a very practical matter. Natural light is provided by the usual sawtooth factory-type roof, except for the classrooms, offices, and assembly room. Bar joists, supporting the insulated steel deck roof, are left exposed except where acoustic tile ceilings are called for. The corridor floor is terrazzo and the shops have industrial asphalt tile floors over reinforced concrete



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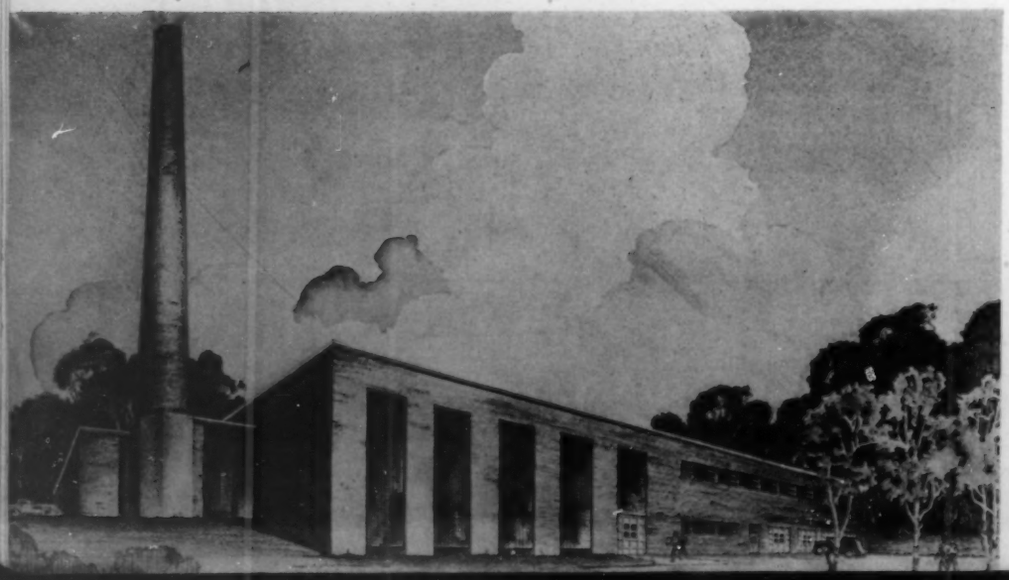


7 BOILER HOUSE AND LAUNDRY

The buildings will all be supplied from the central boiler house strategically located behind one of the old building groups. The laundry occupies the upper level of the sloping site above the fire station, shop and water-softening room

8 STADIUM

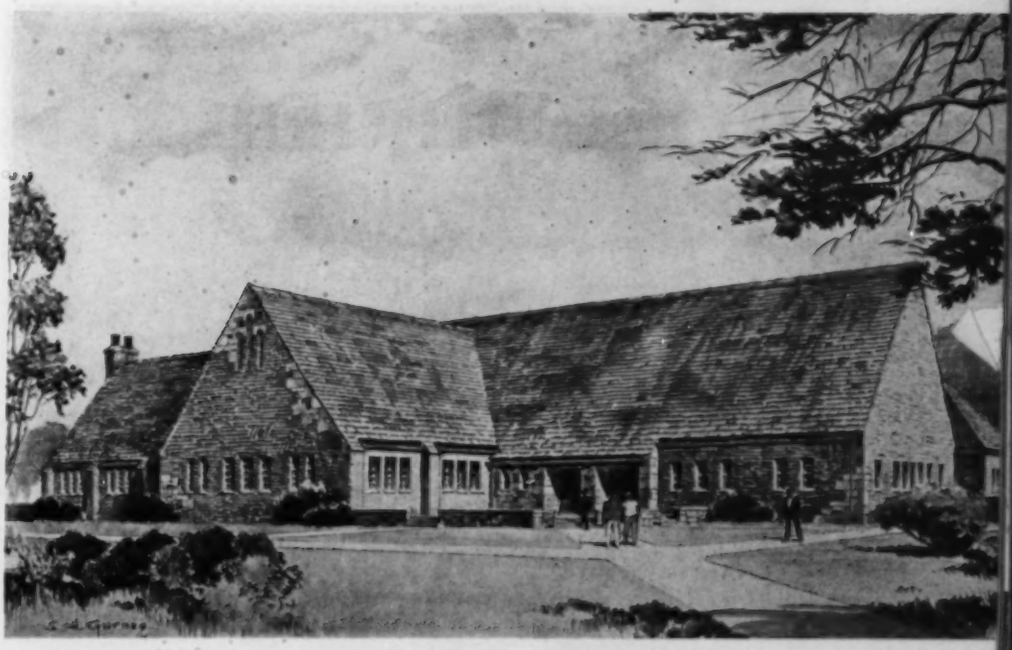
The stadium will seat 8000 spectators in the permanent stands It is near enough to the field house so that the lockers, showers and other facilities serve both home and visiting teams

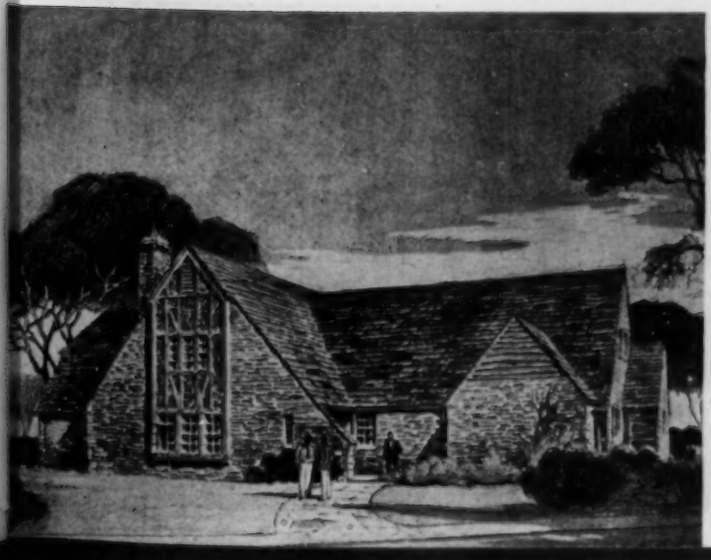
9 DINING HALL

Below. Five hundred hungry youths are to eat their fill in this dining hall, near both the high school and the cottages. There are bowling alleys in the basement and a lounge

10 COTTAGES

Each of the 25 cottages will house 20 boys and a supervisor. In contrast to the contemporary design idiom of all other new buildings, the dormitories revert to suburban old-English. The cottages vary in plan and detail but in general each will have a living room, a study hall and five ingenious dormitory rooms. Each dormitory room is partially divided in halves by wardrobes and lavatories so that the four beds are separated, two in each half. The basement provides playrooms and a furnace room



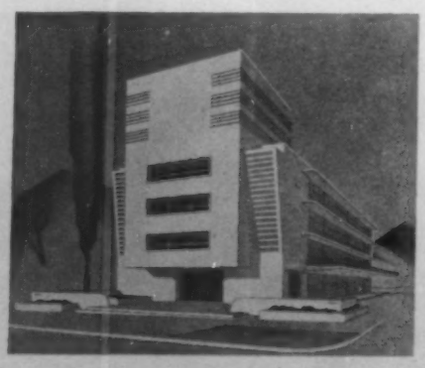


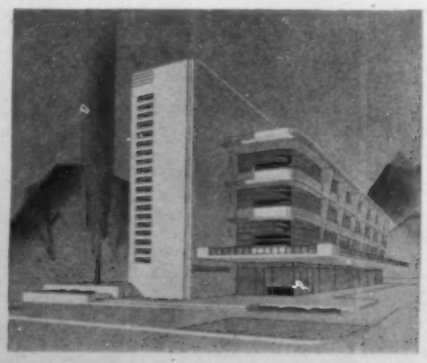
MEDICAL-DENTAL CENTER, OKLAHOMA CITY

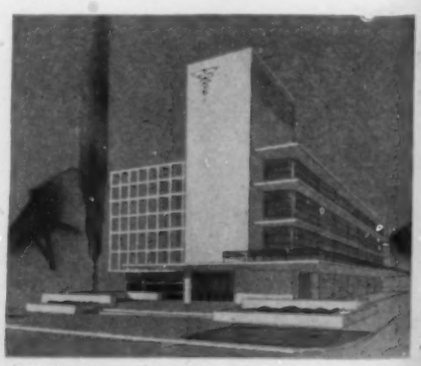
Coston and Frankfurt, Architects and Engineers

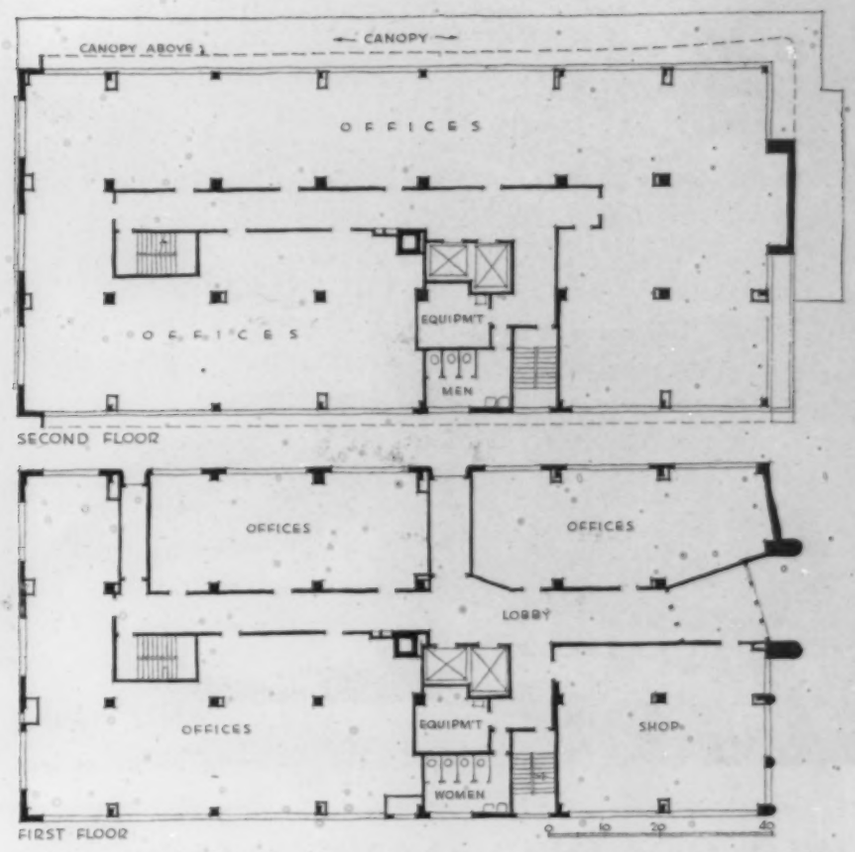
STRATEGICALLY placed in relation to the hospitals of the city, the Center is designed to provide efficient, attractive, flexible office space for doctors and dentists. Space large or small can be arranged to suit the needs of each practitioner. The building is to be completely air conditioned, provided with zone-control heating and individual manual control of temperature, humidity and air as well. The high velocity duct system takes in fresh outside air, filters it, regulates humidity, and delivers it at each window; there is no recirculation of air. The electrical system likewise provides for all the tenants' exacting needs for lighting, power, intercommunication radio and telephone, and hot and cold water, gas, and waste lines are available for the convenient location of fixtures within the offices. Over the windows the projections act as sun-shields.

Three early-preliminary studies. The tower was designed as an elevator penthouse and cooling tower

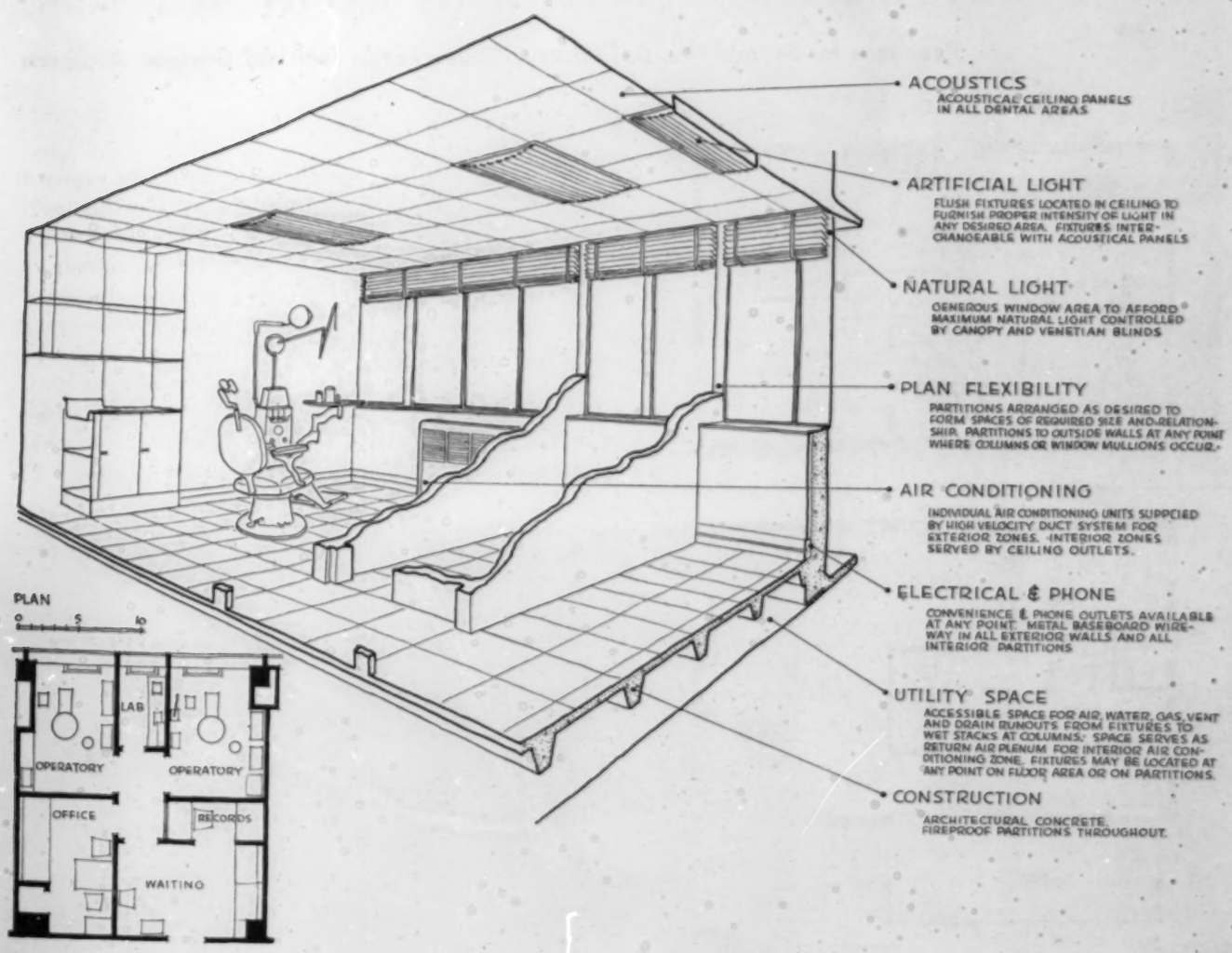


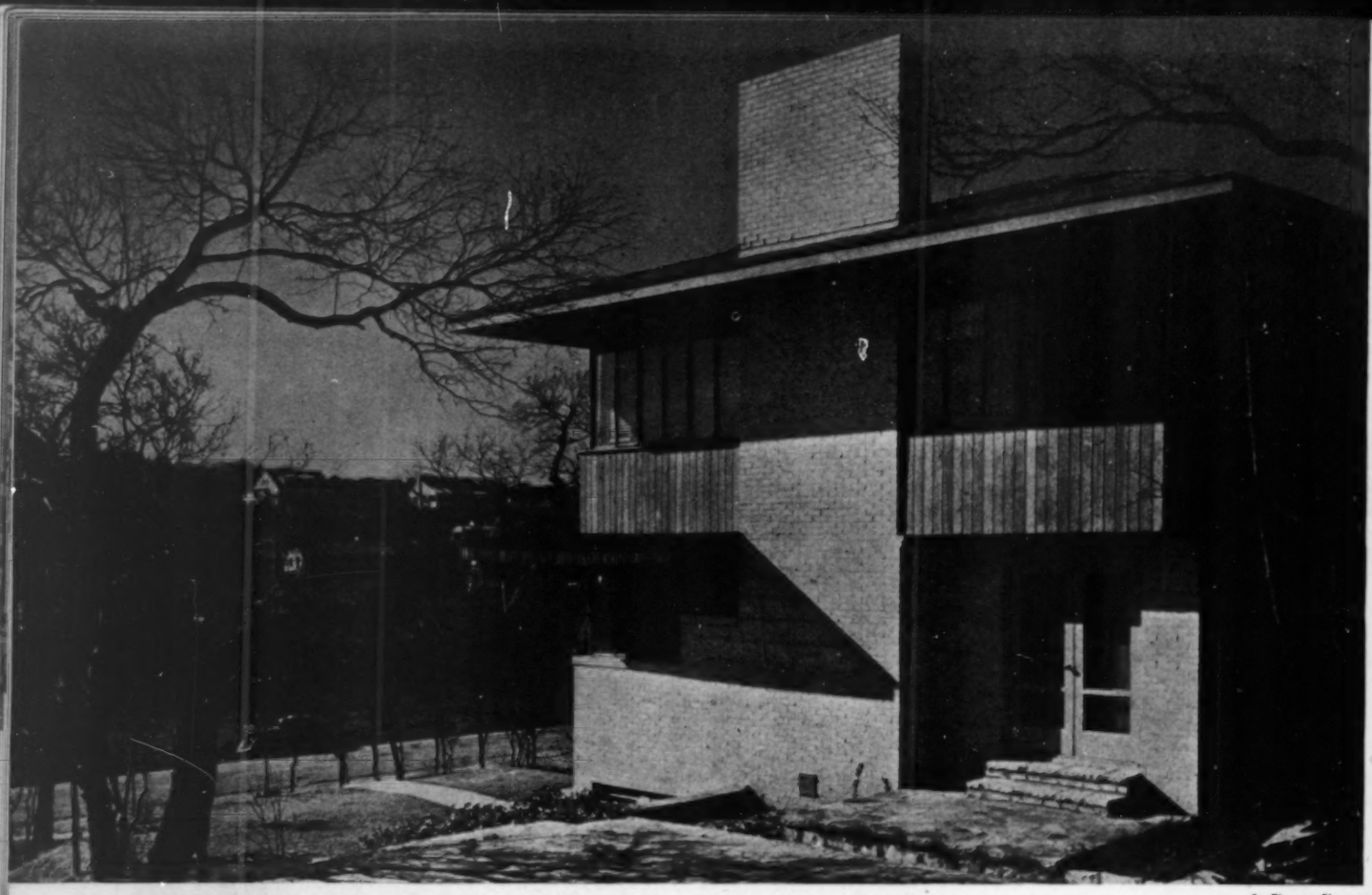






The plans show the flexibility possible in the bays approximately 20 ft. square. The small plan and the perspective below show a dental office accommodated in one square bay. Parking is provided adjacent to the long side of the building with a convenient entrance on that side directly opposite the elevators. The small shop on first floor would naturally be a drug store for the convenience of doctors and patients

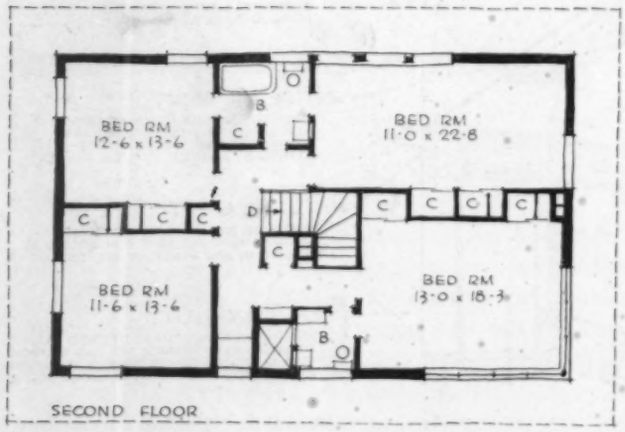

ACOUSTICS
ACOUSTICAL CEILING PANELS IN ALL DENTAL AREAS
ARTIFICIAL LIGHT
FLUSH FIXTURES LOCATED IN CEILING TO FURNISH PROPER INTENSITY OF LIGHT IN ANY DESIRED AREA. FIXTURES INTERCHANGEABLE WITH ACOUSTICAL PANELS
NATURAL LIGHT
GENEROUS WINDOW AREA TO AFFORD MAXIMUM NATURAL LIGHT CONTROLLED BY CANOPY AND VENETIAN BLINDS
PLAN FLEXIBILITY
PARTITIONS ARRANGED AS DESIRED TO FORM SPACES OF REQUIRED SIZE AND RELATIONSHIP. PARTITIONS TO OUTSIDE WALLS AT ANY POINT WHERE COLUMNS OR WINDOW MULLIONS OCCUR.
AIR CONDITIONING
INDIVIDUAL AIR CONDITIONING UNITS SUPPLIED BY HIGH VELOCITY DUCT SYSTEM FOR EXTERIOR ZONES. INTERIOR ZONES SERVED BY CEILING OUTLETS.
ELECTRICAL & PHONE
CONVENIENCE & PHONE OUTLETS AVAILABLE AT ANY POINT. METAL BASEBOARD WIREWAY IN ALL EXTERIOR WALLS AND ALL INTERIOR PARTITIONS
UTILITY SPACE
ACCESSIBLE SPACE FOR AIR, WATER, GAS, VENT AND DRAIN RUNOUTS FROM FIXTURES TO WET STACKS AT COLUMNS. SPACE SERVES AS RETURN AIR PLENUM FOR INTERIOR AIR CONDITIONING ZONE. FIXTURES MAY BE LOCATED AT ANY POINT ON FLOOR AREA OR ON PARTITIONS.
CONSTRUCTION
ARCHITECTURAL CONCRETE. FIREPROOF PARTITIONS THROUGHOUT.
PLAN
0
5
10
LAB
OPERATORY
OPERATORY
OFFICE
RECORDS
WAITING

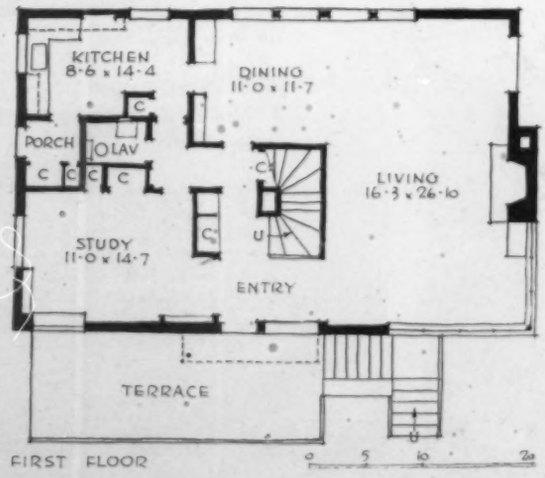


St. Thomas Photos

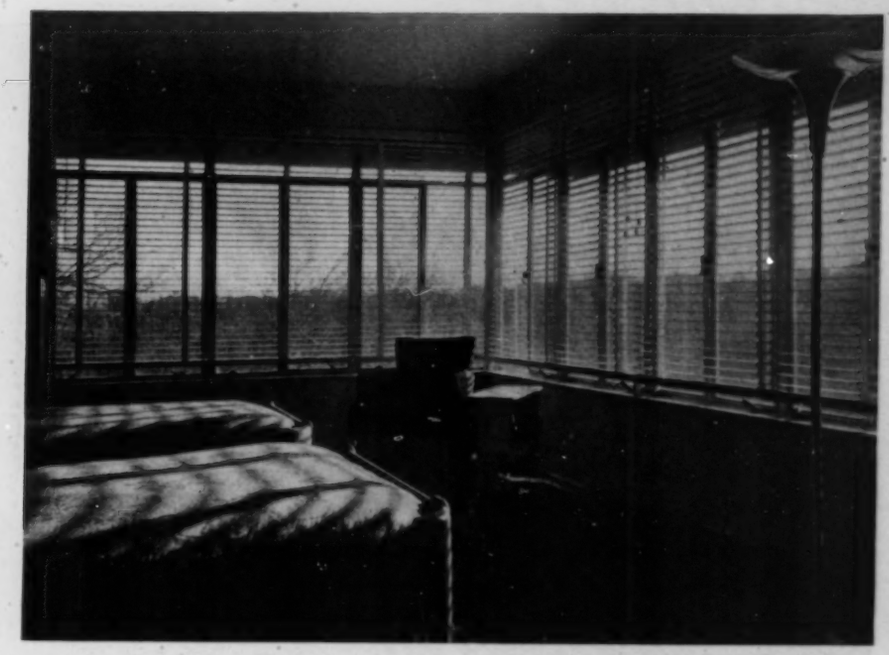
AIR CONDITIONING CALLS FOR COMPACTNESS

Residence for Dr. and Mrs. D. K. Brace, Austin, Texas. Fehr and Granger, Architects





While this house has the wide sunshades expected for a hot Texas climate, it does not show the usual worship of the cooling south breeze. That is because the house is air conditioned, and its logical form is compact and rectangular rather than open and free. Indeed it was designed around a central shaft of air conditioning ducts and stairs. Air conditioning unit and compressor are in a heater room off the garage, at basement level. The house also passed up the native stone so often seen in Texas houses, in favor of the smoother lines of brick, using stone only for terraces and retaining walls.

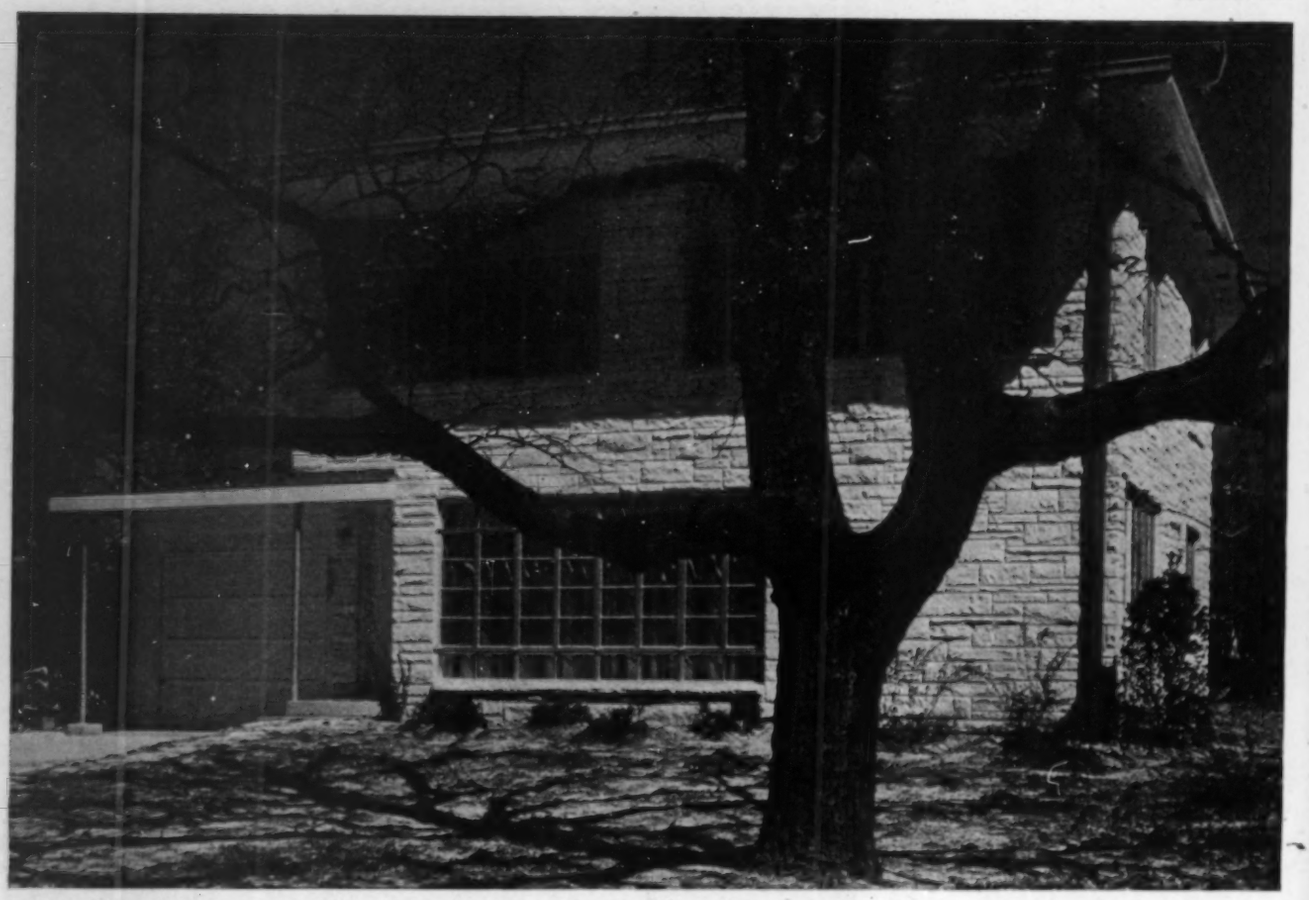


The convenient Lally column permits full corner windows in the owner's bedroom, overlooking the river. A combination of roof overhangs and Venetian blinds gives full control of the sun, the year round

Though the first floor gives good sweep for natural ventilation, and tall casement windows invite the breeze, the house is not dependent on its whims. It is fully air conditioned, with mechanical cooling

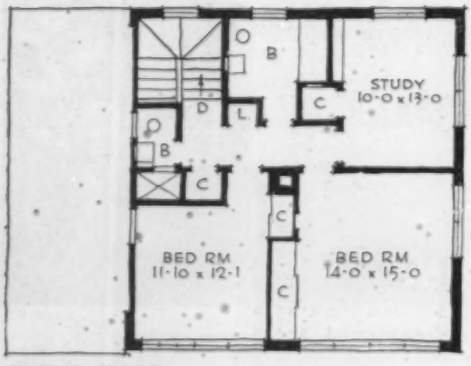
Closets throughout the house are generous in size, and built-ins make them efficient. The built-in file cases in the study are an especially commendable idea, one anybody would appreciate

St. Thomas Photos

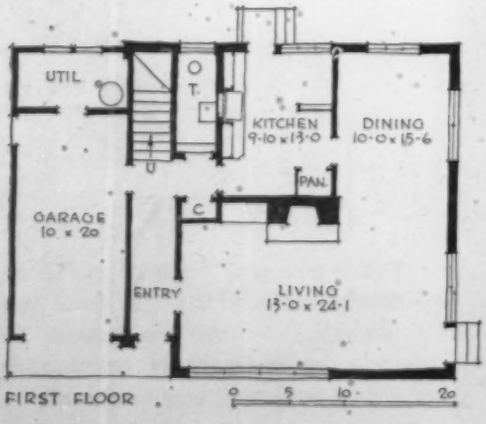


TEXAS HOUSE WITH NATIVE FRANKNESS

Residence for Mr. and Mrs. Carl A. Fehr, Austin, Texas. Fehr and Granger, Architects



SECOND FLOOR



FIRST FLOOR

SINCE this house is all in the family, it might fairly be taken to have Mr. Fehr's true stamp upon it. So here it is: the complete frankness of compact form, of large utilitarian windows, of Lally columns, of native stone without resort to wood courses or other relieving clichés, the scorn for frilly interior decoration.

SCHOOLS IN TRANSITION

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY NUMBER 121

A YEAR OF BASIC SCHOOL PROGRESS

By Douglas Haskell, Associate Editor

SCHOOL progress is so fast that an annual "Building Types Study" is required simply to keep abreast of new developments. The year 1946 was remarkable for the small number of schools actually built and for the large advance in *basic standards*.

Performance Standards: If a prize were to be given for the most fundamental single contribution it would have to go to no architect but to Dr. Darrell B. Harmon of the Texas State Department of Health. Publication of his researches (ARCHITECTURAL RECORD, Feb. 1946, pp. 78–90) gave wide dissemination to the idea that *behavioristic tests* are the basis of sound and objective architectural criticism. Measurements conducted at large scale revealed that some of the most sanctified practices of design resulted in serious distortions in child growth, impairment of health, and retardation in learning. The self-evident but badly neglected assumption was that any planned environment must grow first of all out of the known requirements of *body mechanics*, not to mention psychology.

Dr. Harmon's approach to architectural performance was more important than any of his individual conclusions. Dealing first with problems of light, he found that vision involves far more than the eye, and that architectural design for good vision involves more than watts and windows. It involves the interaction of space plan, fenestration, scheme of artificial illumination, color treatment, and seating method. No stronger support could have been given to the concept of architecture as an art of many-sided correlation. Results of further tests will shortly be published in the RECORD with some of Dr. Harmon's immediate recommendations.

Elsewhere the trend toward *performance standards* was illustrated in the action of code authorities and notably in the deliberations of the National Council of Schoolhouse Construction, whose Standards Committee will shortly issue new, broader, more flexible recommendations.

General plan arrangements showed no great generic invention. The so-called "Winnetka" or cog-bar arrangement of projecting L-shaped classrooms alternating with open courts came into use for the lowest grades in new plans all over the country. The "California" arrangement of classroom wings in parallel series was found economical wherever the climate was mild enough for an open corridor as the connection.

One-story school plans traveled eastward in increasing numbers, significant examples appearing in Illinois, Ohio, New York, Connecticut, Vermont, and other states, most often in smaller rural schools. The travels brought a sea-change not generally for the better. Too often the clean-cut western scheme was fussed up merely to create a symmetrical façade or allow for cupolas. Easy automobile access was a design factor in the rural school designs of the Chicago firm of Perkins, Will & Barry, and a scheme for up-state New York by the same firm (ARCHITECTURAL RECORD, April 1946, p. 76) provided quite charmingly for innumberable bicycles. The rural school was the subject of special study at Columbia University and by the Bureau of Indian Affairs.

Classroom daylighting and artificial lighting schemes would have seemed to reach a high variety back in 1944 when the RECORD published "16 Ways of Daylighting Classrooms," yet 1946 was to see some other important departures.

In the realm of *one-story* plans with side-corridor, innovations arose out of the continued effort to improve the deep, square classroom which had been found so convenient and simple for activity teaching programs. Frank Wynkoop had thoroughly explored clerestories as a method of bringing in daylight closer to the dark center of such a room (ARCHITECTURAL RECORD, June 1945, p. 85). Maynard Lyndon had experimented with an elaborate skylight (ARCHITECTURAL RECORD, March 1946, pp. 120–121). In the present issue the RECORD is privileged to present another skylight scheme, simultaneously and independently developed by Franklin, Kump & Falk, which in a sense rounds a cycle (pp. 93–95). With classical simplicity and directness of concept and execution it attains "*trilateral*" lighting by means of a skylight at the ridge of a low, child-scaled, gabled building of highly satisfactory shape and proportions. Mr. Lyndon in the meantime has developed an-

other very interesting *bilateral* scheme of improved efficiency and stimulating form without resort to the skylight (pp. 88, 89).

In *two-story* or higher buildings the daylighting problem is more difficult. There is an understandable tendency to retain the 22-ft. deep classroom rather than a deeper one, and on a double-loaded rather than a single-loaded corridor. Since economy of construction and the lower air-volume requirements of modern forced-air ventilation both favor reduced ceiling heights, it is not too good an answer to try for tall unilateral windows. This helps explain the popularity of glass-block solutions, using prismatic or directional types which throw a high proportion of the light back to the inside ceiling. Dr. Harmon's test gave this arrangement (with a vision strip of clear glass under the block) a high rating as brightness engineering. The example by Eberle Smith Associates in Detroit (pp. 86, 87) gives clean architectural handling to details which in the original Texas tests were somewhat clumsy, and shows the possibility of a very handsome exterior.

Opinion is, however, far from unanimous in favor of glass block; advocates of clear windows have criticized the persistence of glare spots and, in the case of two-story schools especially, have sought their solution with the aid of artificial illumination.

Integration of daylighting and artificial light as a functional device received strong impetus during 1946 as result of the rapidly spreading concept of "brightness engineering" as a unified science. In a project published by the RECORD in April 1946 (pp. 72–81) Perkins and Will (now Perkins, Will & Barry) definitely accepted the low (10-ft.) ceiling for reasons of economy and good child scale; forsook the effort to rely mainly on the sun; substituted auxiliary lighting for the inner part of the room from a *luminous ceiling* of the kind that has actually been executed since then in a number of stores and notably in the United Nations auditorium. Others added experiments with fixed or movable *window louvers* as control devices. Sylvania engineers used fixed vertical metal louvers in an installation at Salem, Mass. (*Architectural Forum*, May 1946, pp. 180–183). RECORD editors meanwhile see greater possibilities in the movable horizontal louver scheme of Kenneth C. Welch (ARCHITECTURAL RECORD, March 1946, pp. 114–119) which is under further development and test by a committee of the Illuminating Engineering Society.

An important development in light control is the trend toward *getting all the daylight inside the room before controlling it* instead of continuing the cliché (now wearisome) of overhangs and various outdoor sun-catches. These sun-catches, or "brise-soleils" as they are called by the learned, were the most advanced practice of 20 years ago in the hands of Le Corbusier, and are a temptation in developing "interesting" external appearances. Their fallacy is three-fold: (1) overhangs or trellises cut off the *high* light which is potentially the best light in the room; (2) they cut off thermal gains from the sun without cutting thermal loss; (3) they make an unchangeable structural feature out of something that should be an item of improvable equipment — and it is a structural feature usually difficult to paint and to maintain in good repair.

Heating and ventilating is now a live field, and special attention is paid to recent developments in this study.

As in lighting, there is a tendency to overhaul old handbook methods in the interest of economy and of actually tested performance.

A great stimulus was given by publication of the new "Heating and Ventilating Recommendations for New York State Schools" which is more fully reported on p. 96. Considering the degree to which New York City, in particular, has suffered under leadership which has contented itself with attaching "styles" to its school buildings while such necessities as heating and ventilating have been left largely to manufacturers and engineers, it is encouraging to find heating and ventilating treated as an *architectural problem* in which the building as a whole is a piece of heating and ventilating equipment.

The specific suggestions made by the New York State consultants are sure to become subjects of extended debate — a condition of health for purposes of progress. Many architects will quarrel, for example, with "open-window" methods of control which place the responsibility for healthful environment on the overburdened teacher; an immediate answer is that simpler controls cannot lightly be dismissed if they reduce unit costs and permit architectural design of more new schools for more pupils. A long-term answer is that consideration of the whole room as a thermal unit may lead to useful invention capable of future conversion into manufactured components.

A pronounced trend observable in projects under construction was away from "pure" or simple heating systems toward mixed and balanced systems. Two such balanced systems will be found on pp. 95 and 98.

Installation of teaching aids such as audio-visual devices received increased attention from architects as part of the original building design. A very fine study in this field was made by Philip Will, Jr., and appeared in the February ARCHITECTURAL RECORD. It showed how to adapt every type of classroom in current use to the easy employment of sound and sight projection. Less unanimity of approval attached to the schemes for audio-visual centers worked out by the Visual Equipment Manufacturers Council (ARCHITECTURAL RECORD, Nov. 1946, pp. 72–79) which must be considered as stimulation to further work rather than as universally acceptable standards. Meanwhile wide circulation was given by the Radio Manufacturers Association to basic standards in school sound systems worked out with the U. S. Office of Education. This work is reviewed on p. 90 and implemented by schematic layouts worked out by William de Haan of the Radio Corporation of America.

In the whole field of school development, the biggest step has been the acceptance of measurements upon children as the criterion of light, warmth, comfort.

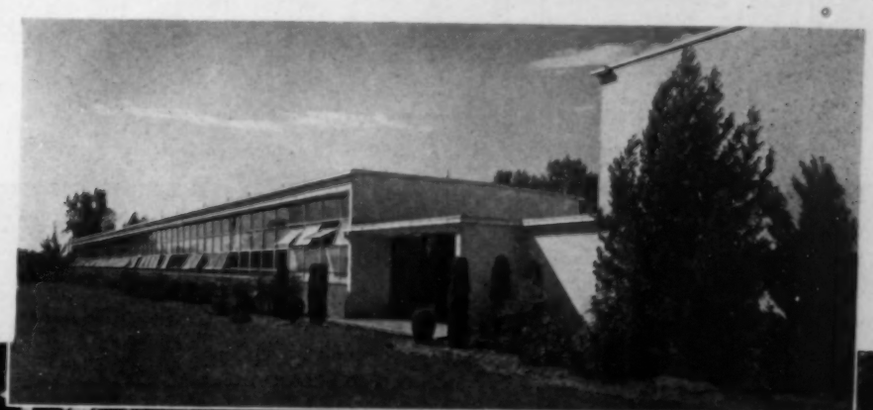
CLEAN DESIGN STANDS UP IN CONSTANT USE

Edison Technical High School, Fresno, California

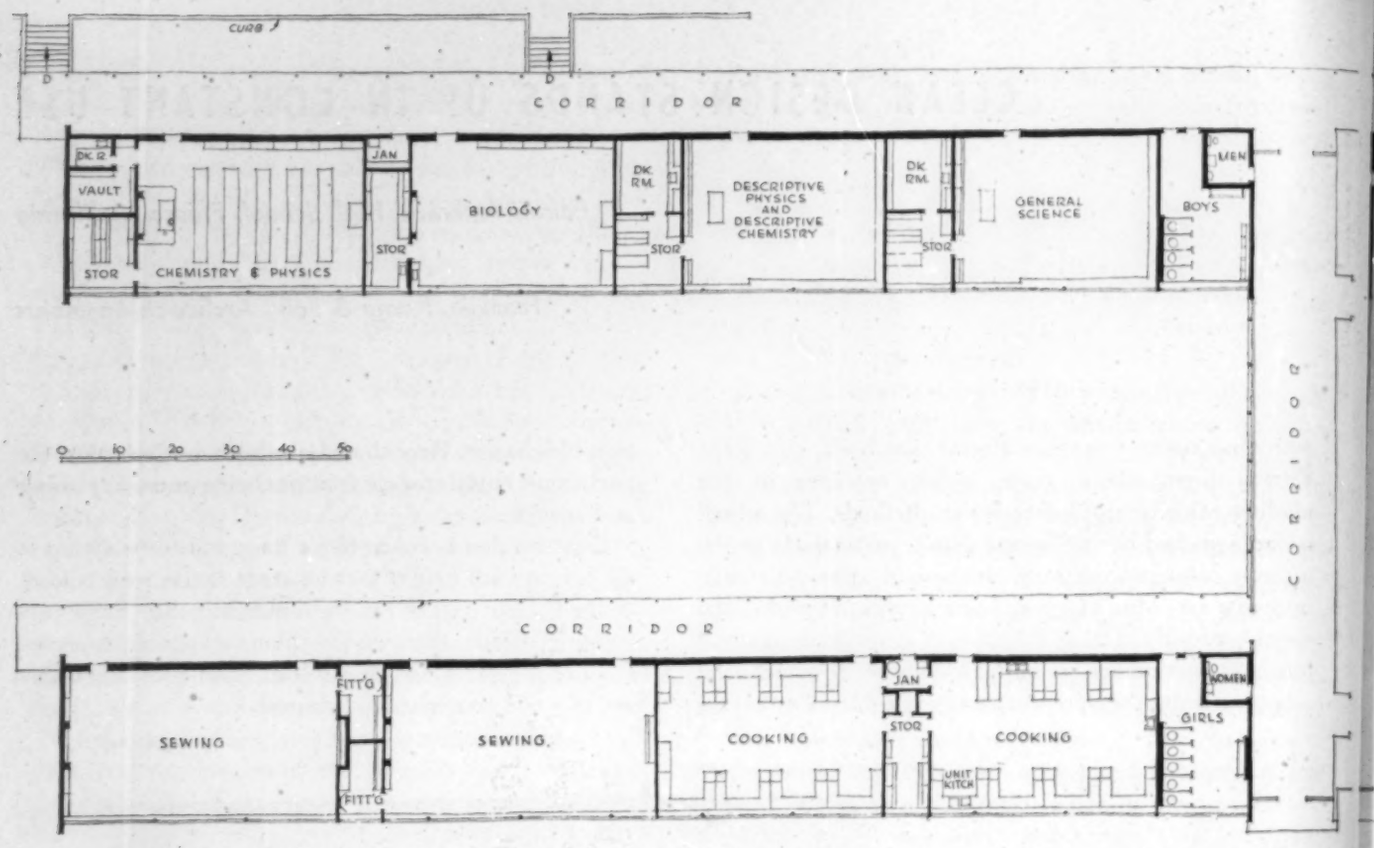
Franklin, Kump & Falk, Architects-Engineers

PHOTOGRAPHED five years after it was built, this technical high school gives visible evidence of the abiding value in up-to-date design methods. The school is distinguished by its elegant detail, particularly in the interior cabinet work, and this would appear to have invited a rare kind of school housekeeping devoid of the usual confusing clutter. The use of modular design and loft construction is especially appropriate to a technical school with its ever-present storage problems involving possible change. Here there have been no changes yet in partitions, initial storage facilities being unusually ample and specific.

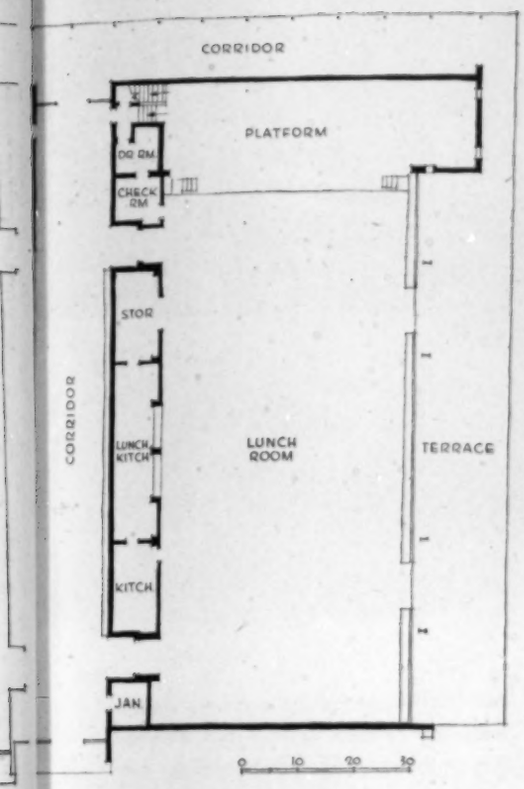
Construction is concrete for floor and for walls up to sill height (full height for the stage house seen below). A final flash coat gives the exterior color. Steel pipe columns inside the window plane support structural steel roof girders carrying wood frame roof. Partitions are of wood construction, plastered.

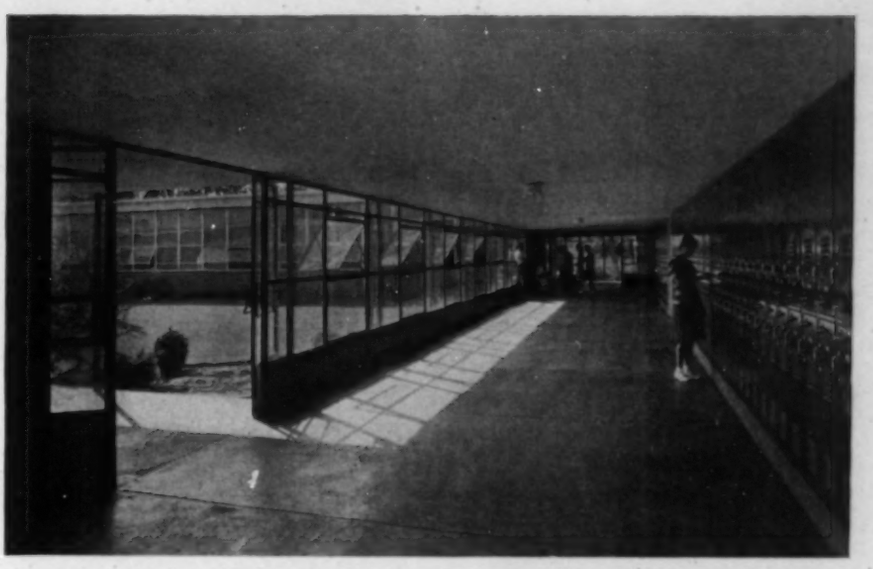


View at right is from the east, showing classrooms; view below from north, with lunch room and stage house in the foreground. Steel H-columns support this higher roof, standing in front of the steel sash curtain wall

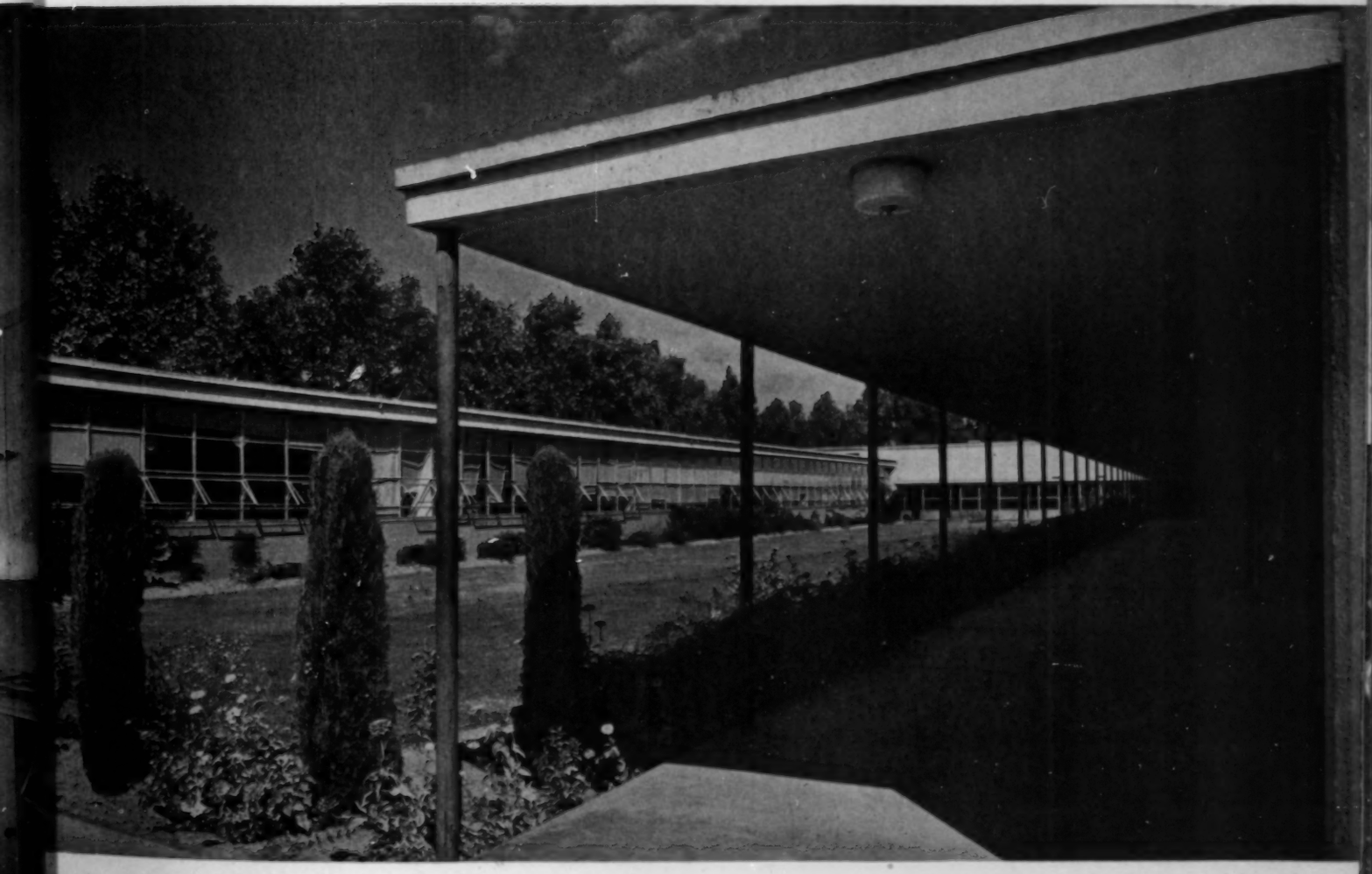


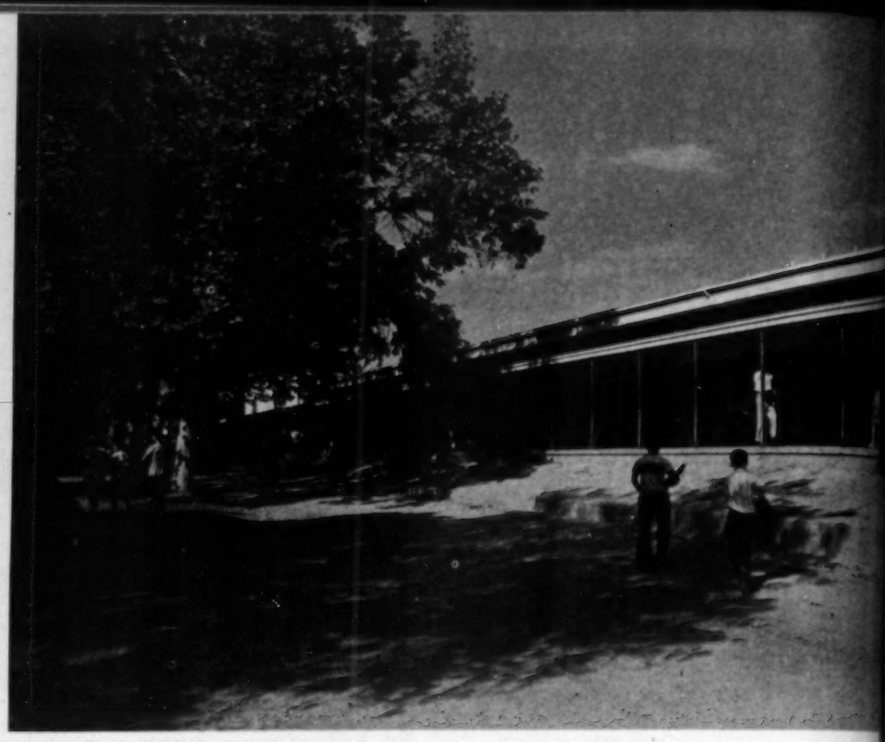
Sewing-room view below shows how well bilateral lighting works in the classroom width of 26 ft. 6 in.; and the view (right) taken at the front of the same room shows the orderliness of well-designed, cleanly carpentered cabinets finished in birch plywood (note the triple suspended blackboard). Classroom walls are plaster above 3-ft. natural birch wainscot; ceilings acoustic tile, floors asphalt tile. At left, rear, in the classroom view a girl is seen using the triple mirror in a carefully equipped fitting room



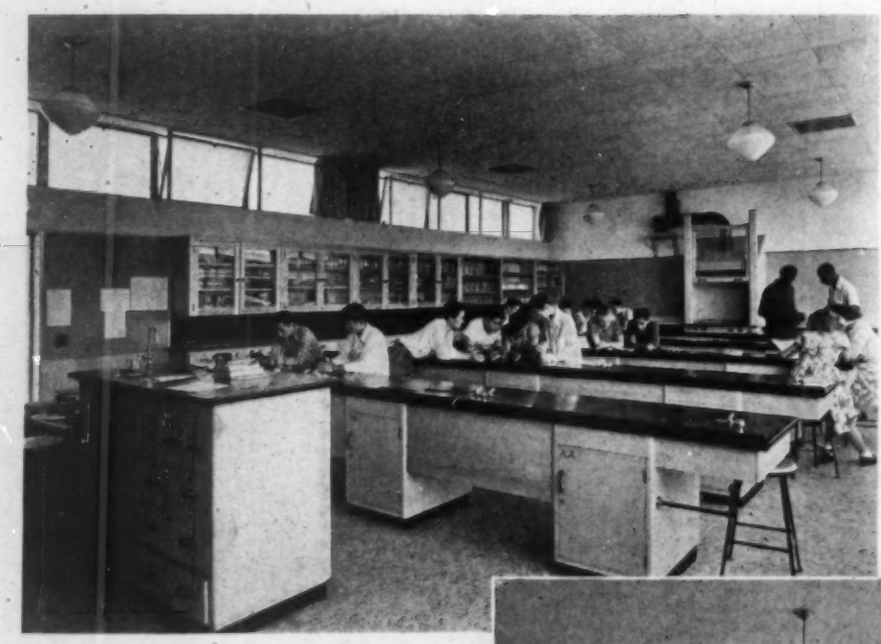


Plan (opposite page) shows the typical parallel-wing disposition; photograph above the cross-corridor, glassed-in and supplied with lockers; large photograph below, the interior open court. (Since this is a high school the area is not used for outdoor classrooms, and has received decorative planting.) The one feature in the plan that might be questioned is that the large classroom windows face east and clerestory windows west—a departure from the same architects' usual practice of putting the large windows north, and explained no doubt by special site problems. Cross-corridor is especially felicitous

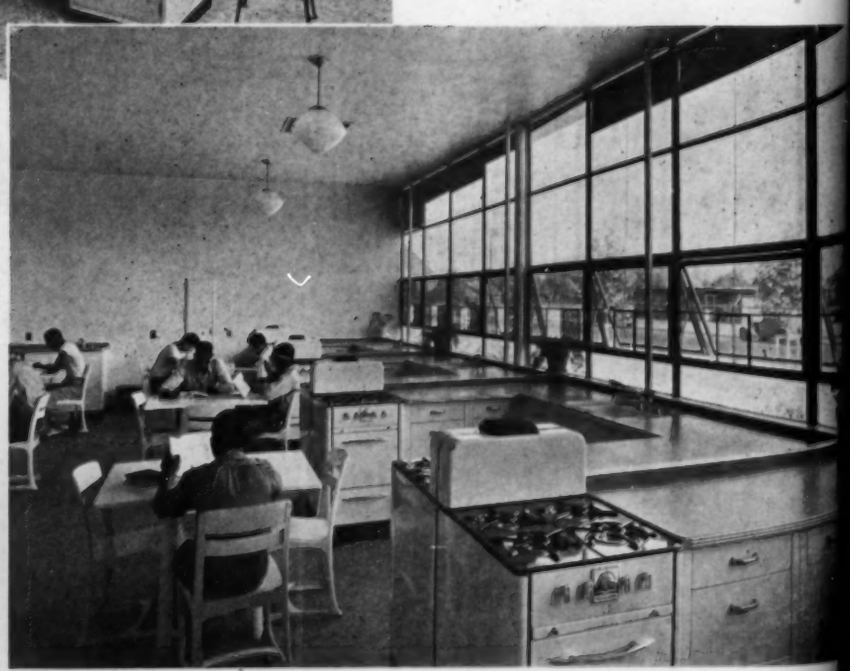




Right: Western corridor, in a mild climate, provides an extraordinarily inexpensive means of classroom access. In this school there is not even need for lockers in the usual position in the adjoining wall, these being concentrated in the cross-corridor (see previous page)

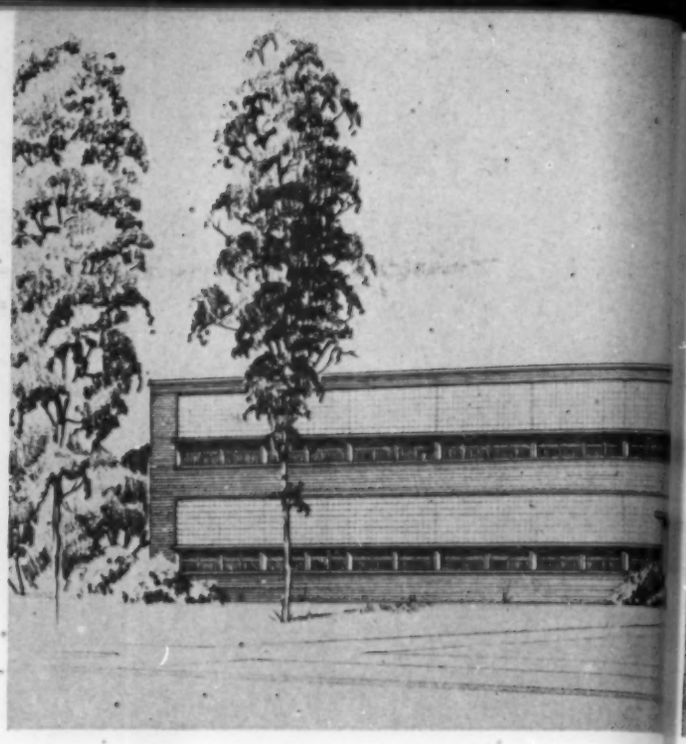


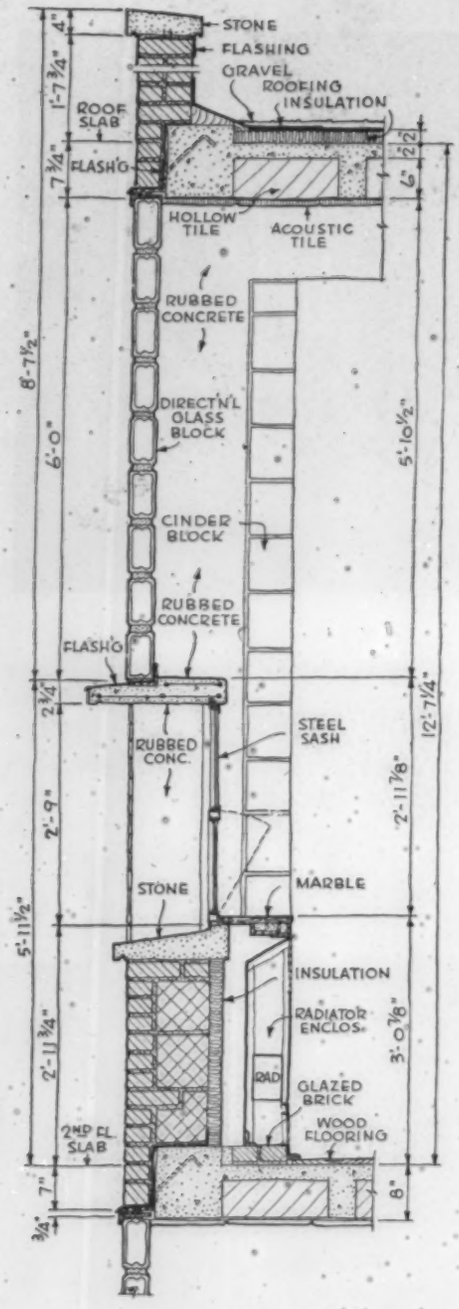
Left: Handsome design and very careful execution of these science-room benches has resulted in careful handling and respect by pupils. The pipe at the rear of the room is an exhaust for chemical fumes



Right: A domestic science room is doubling as a study hall. In this room cabinets are white enamel steel with linoleum tops and wall is finished in washable paint

Serving room (above) for lunch room (below) was originally intended to dispense only sandwiches, and this explains its long narrow shape (see plan, p. 82). At the last minute the far end was adapted as a kitchen to serve a single hot dish. Only a slight widening, the help thought, would be required to make the shape ideal even for the unexpected heavier use. Lunch room wainscot is natural-finish birch plywood, 7 ft. high. Above this, the wall and ceiling are acoustic tile. By starting at a bulkhead line 1 ft. above the floor, and making doors 7 ft. high, the architects are able to fit their vertical elevations (as well as horizontal plans) to neat use of a 2-ft. module.



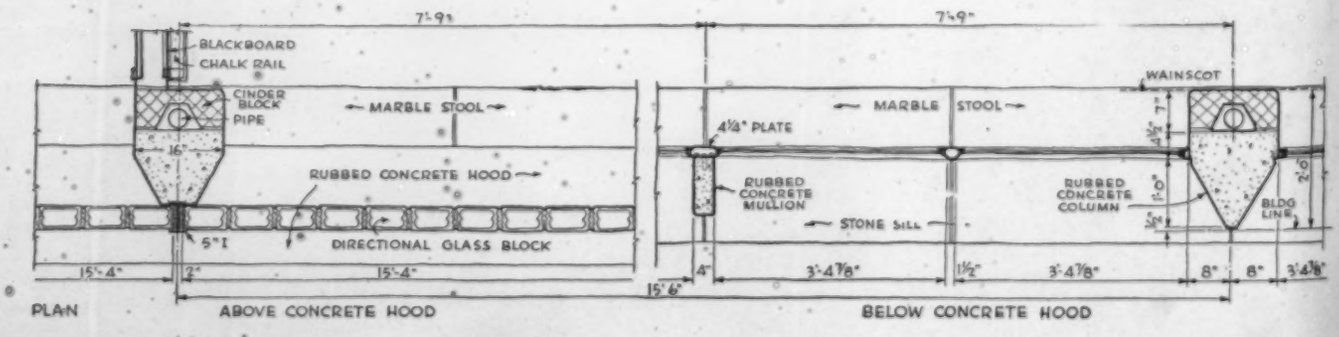


Vertical section, above, and horizontal sections, below, show the detailing which has made possible the clean architectural effect indicated in perspective. Note especially narrow hood shading vision-strip of clear glass, and splayed mullions

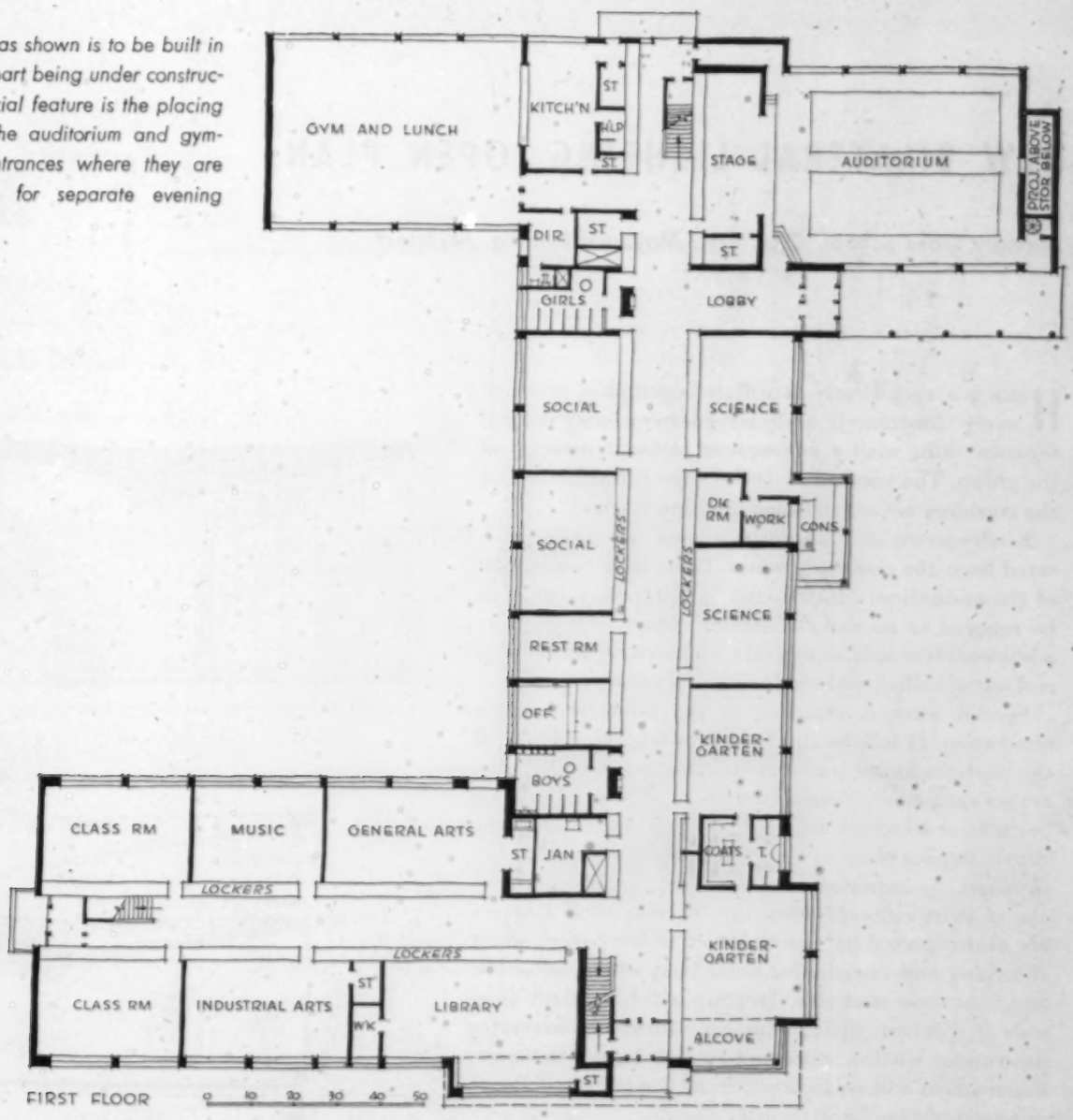
UNILATERAL LIGHTING, TWO-STORY SCHOOL

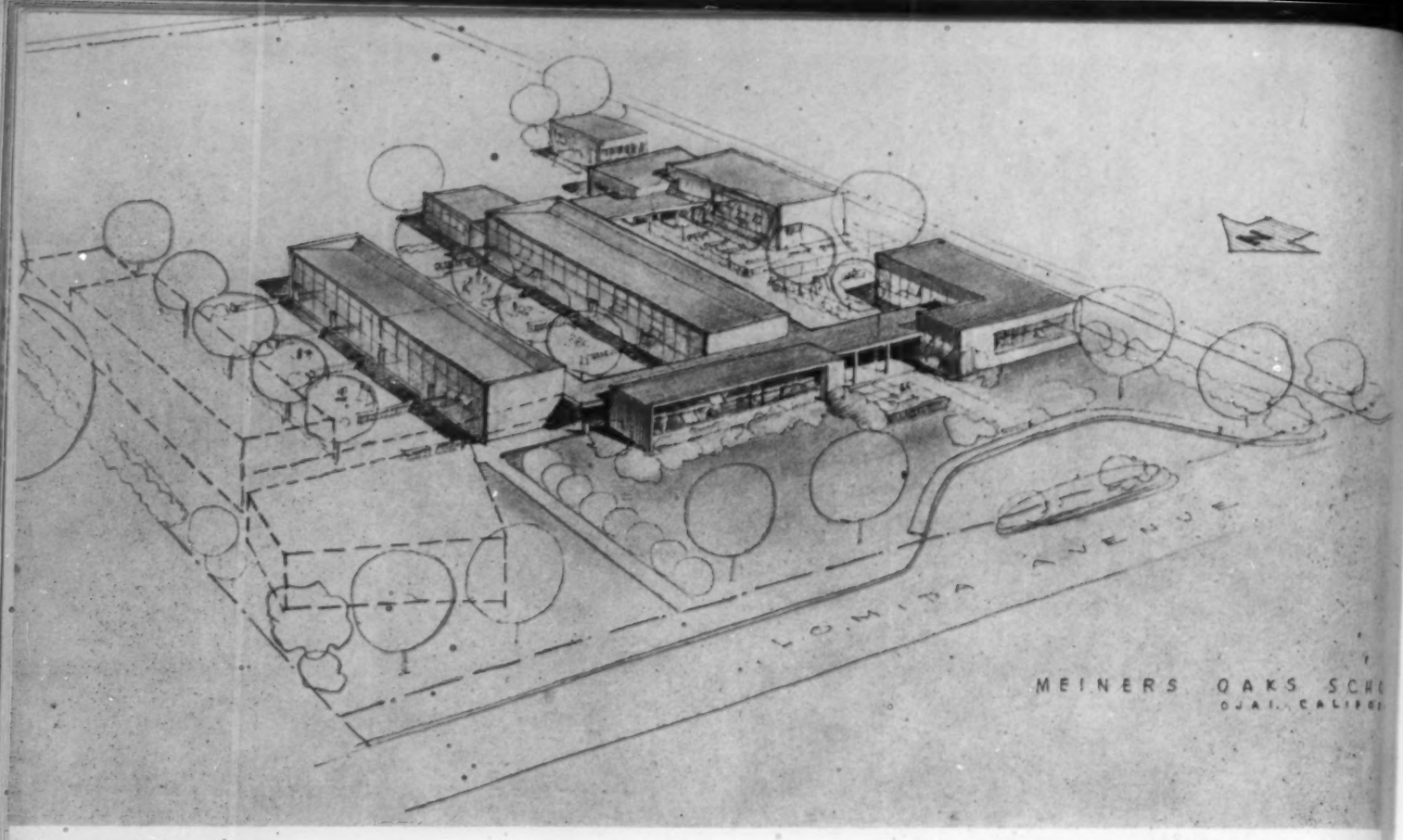
James Vernor School, Detroit
Eberle M. Smith Associates, Architects-Engineers

PART of this school is under construction under a modified program, but the plan seen across-page is the ultimate development. Apart from the interest which attaches to the plan, there was special interest for the editors in the exceptionally handsome handling of a glass-block exterior. A large number of school buildings is under design or construction using prismatic glass block for its efficiency in redirecting daylight to the rear of the room. Too many of these designs are mechanical and uninteresting. The details shown herewith incorporate the desired vision strip of clear glass to yield a view, and the important feature of a hood over this vision strip to shade it against glare. In designing a slender hood and gaining acceptance for it from code authorities, the Detroit architects have provided their confreres with useful ammunition.



The school plan as shown is to be built in stages, the first part being under construction now. A special feature is the placing of the library, the auditorium and gymnasium, near entrances where they are easily available for separate evening community use





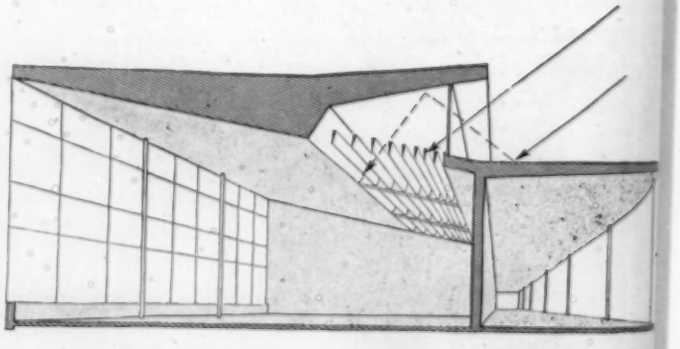
NEW BILATERAL LIGHTING, OPEN PLAN

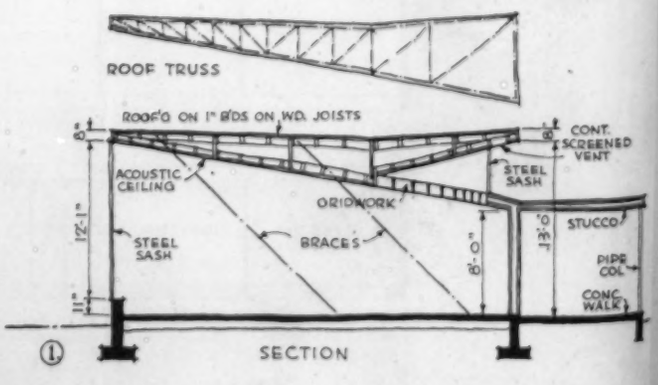
Meiners Oaks School, Ojai, Cal., Maynard Lyndon, Architect

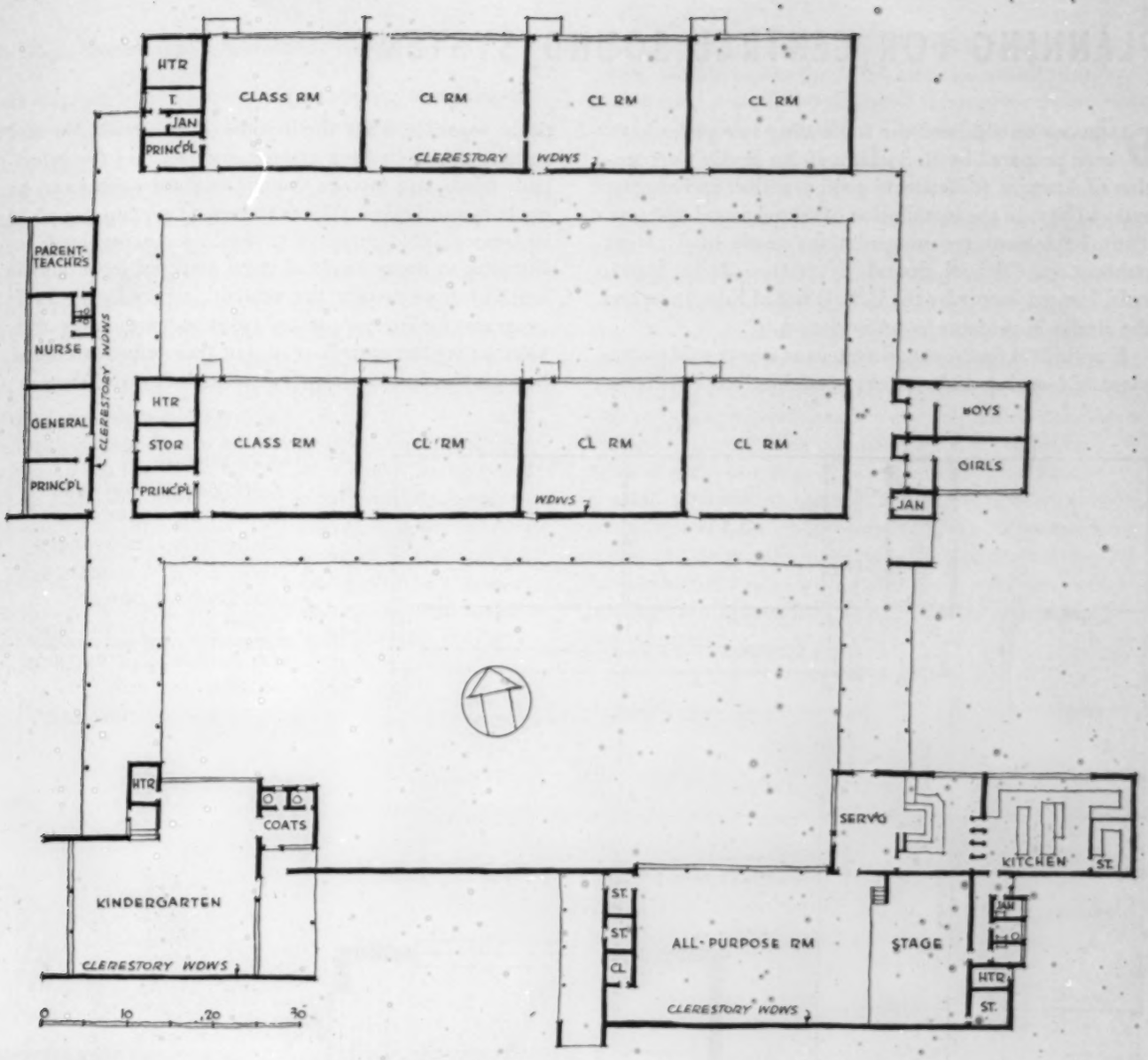
HERE is a very clearly articulated open plan, in which every function is well served by a well defined separate unit, with a consequent pleasant massing of the group. The vocabulary is the same throughout, and the corridors are a handsome unifying feature.

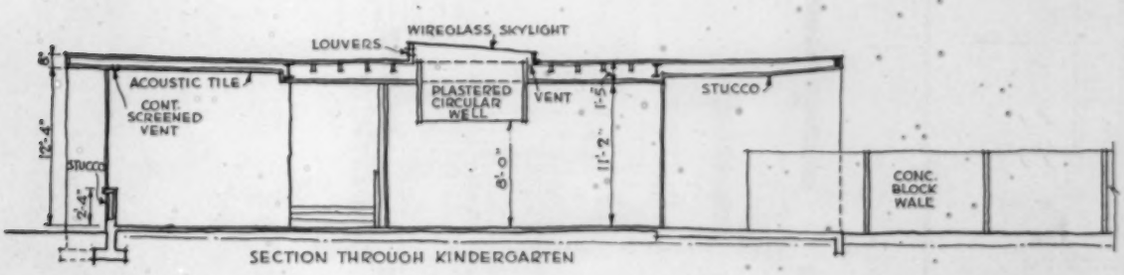
Kindergarten and "all-purpose room" are nicely separated from the classroom wings. Upon later completion of the auditorium (dotted) the "all-purpose room" can be relieved of its extra functions. There is a separate administration unit, equipped with parent-teacher room and nurse's office, and a separate toilet house.

Special interest attaches to the bilateral lighting innovation. It follows the good principle of "getting all the daylight inside before controlling it." Fixed louvers are so calculated (detail, bottom of opposite page) as to shut out all direct view of the sky. They continue the simple sloping plane of the ceiling which appears to rise skyward. As indicated in the sketch, there is auxiliary use of light reflected from the corridor roof. Louvers are also expected by the architect to have some effect absorbing and re-radiating solar heat when sun is low and heat most desirable. Heating will be radiant from coils in concrete floor, with supplementary convector pipe under window sill counteracting large glass area; illumination will be indirect, from bowl-silvered lamps in concentric louver fixtures.

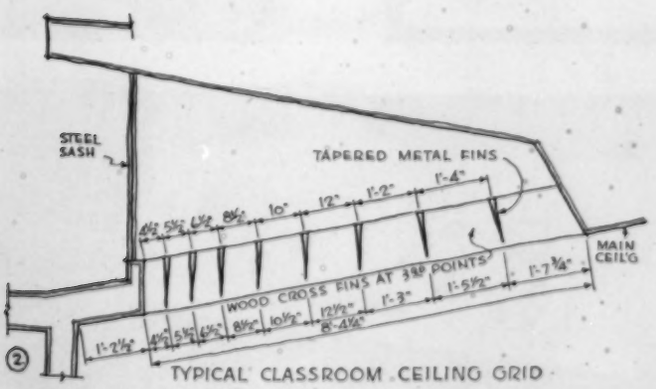




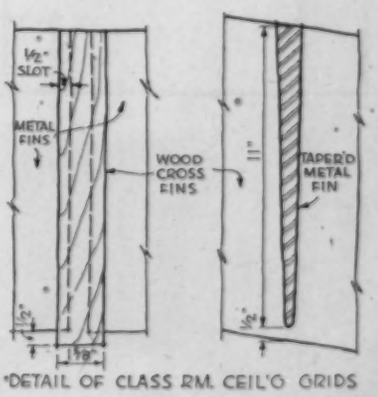




SECTION THROUGH KINDERGARTEN



② TYPICAL CLASSROOM CEILING GRID

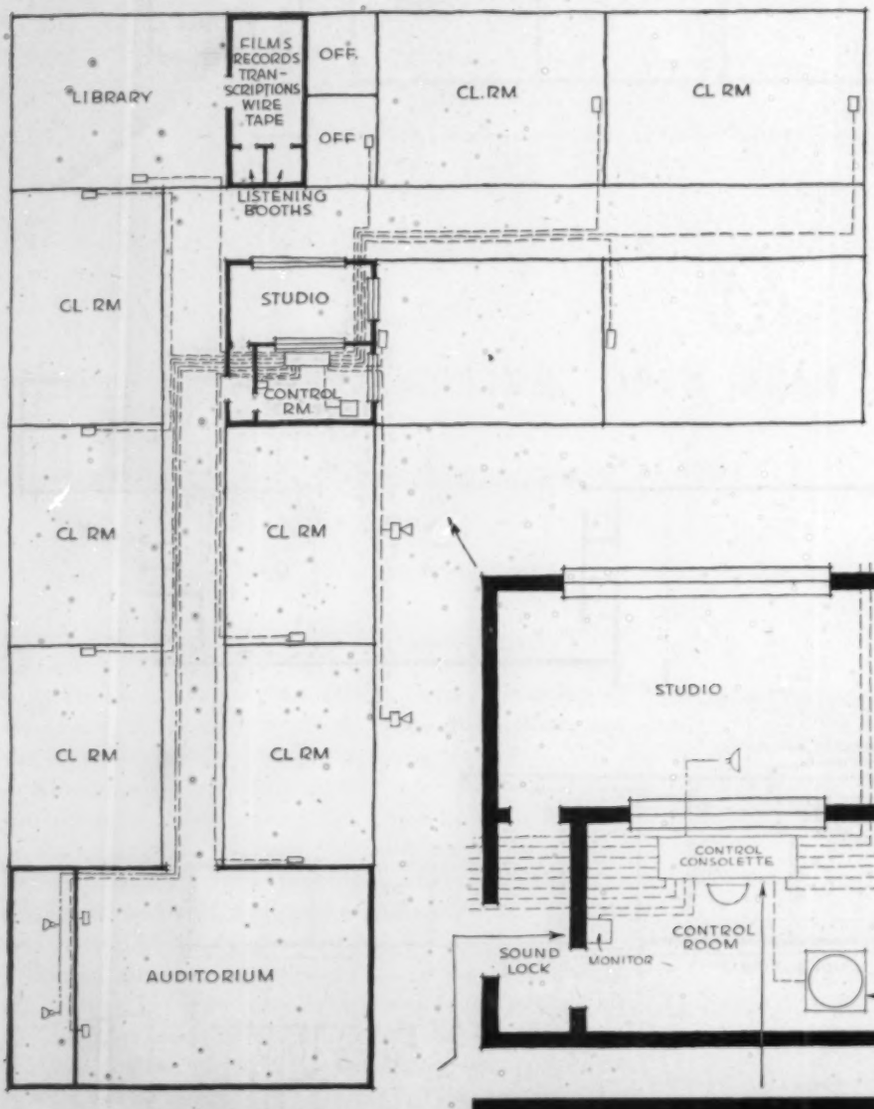


③ DETAIL OF CLASS RM. CEIL'G GRIDS

PLANNING FOR CENTRAL SOUND SYSTEMS

DIAGRAMS on this and the succeeding two pages have been prepared by R. deHaan of the Radio Corporation of America to illustrate good practice, and suggest extra utility, in the installation of school sound systems. They implement recommendations made in a recent publication, "School Sound Systems — Basic Standards," issued jointly by the U. S. Office of Education and the Radio Manufacturers Association.

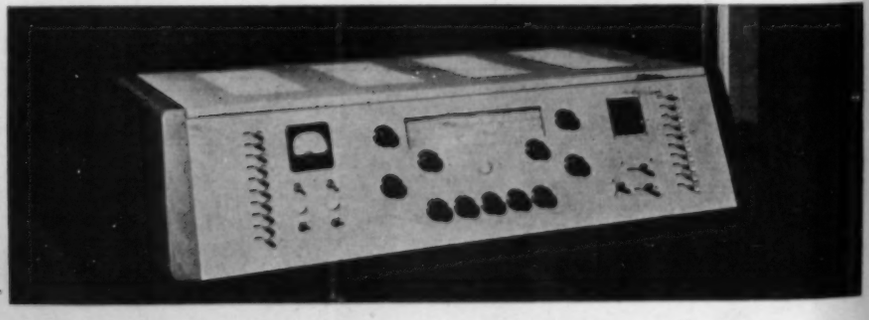
Emphasis is on the sound system as a potential instrument of learning and student participation. This is entirely separate from the notion of a listening-in and announcement-making arrangement serving the principal's needs and moods, though announcements can be made instantly over the central sound system as part of its service. Nine groups of student use are involved: (a) listening to many kinds of radio material from outside and (b) from within the school; (c) producing radio programs for interior use and (d) broadcast among other schools; (e) the same four uses of transcribed, recorded, and playback material; (f) student radio workshop.



Photos courtesy RCA

Turntable

Monitor



Control Panel

1. Single-channel system, elementary or junior school

All diagrams are suggestive only, although sound centers, marked by heavier lines, are accurately developed.

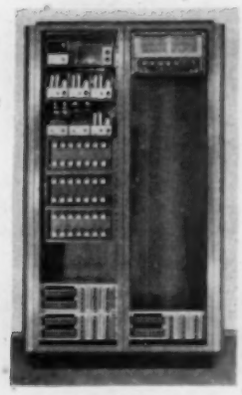
A single-channel system is indicated on the opposite page. The heart of the system is a studio which is represented in heavy outline at large scale. In the general plan of the school, this occupies a re-entrant angle — least useful for other school purposes, most useful for this one, being central for shorter runs, and isolated from outside noise. A display window dramatizes the studio from the corridor. Classroom immediately adjoining can be radio workshop — again glass panels but no direct opening. Access only through soundlock.

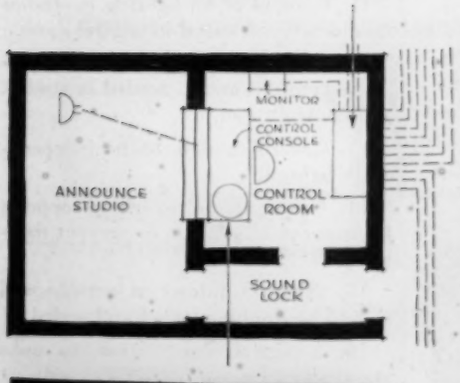
Equipment is shown in photographs. The key unit is a control panel or "consolette" on a desk (top not over 43 in. high) in view of studio. It has 6 inputs; 3 microphones (2 in auditorium, 1 in studio), 1 radio tuner, 1 turntable, and 1 outside line. The operator can mix the input of the 3 mikes and 1 turntable in any desired combination, send it to any desired room or combination of rooms. Volume is checked visually by an indicator on his panel; volume and quality by a monitor speaker in the control room. Optional intercommunication system between control points and classroom can be modified to provide virtually a dual-channel system.

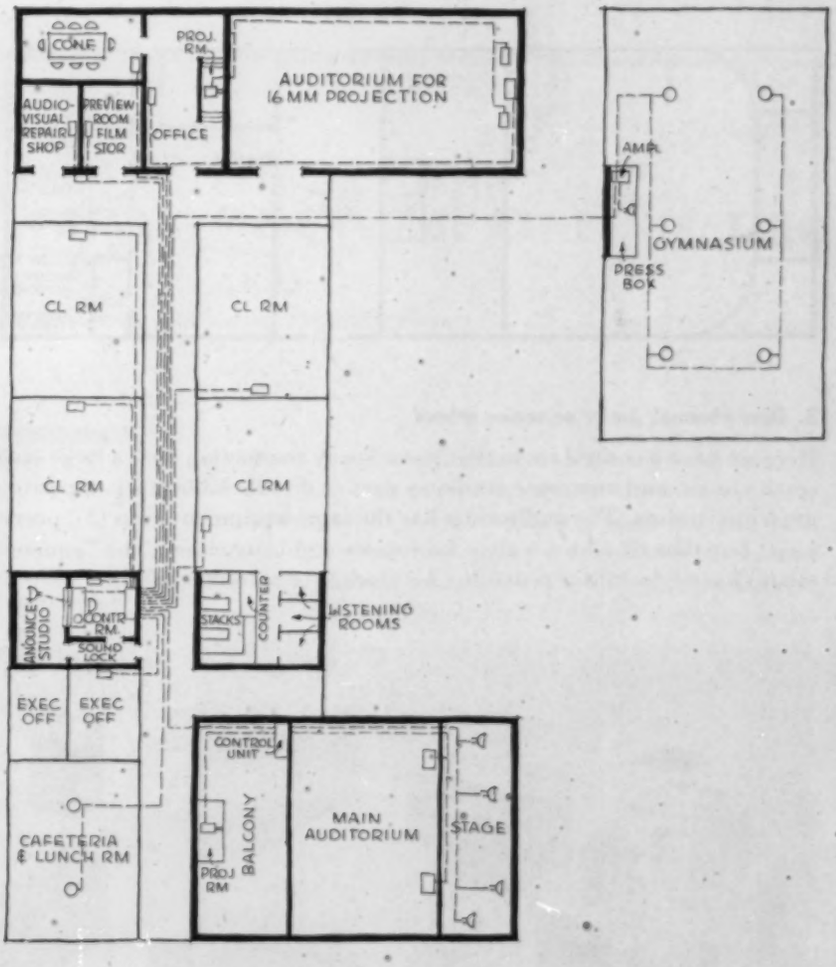
2. Dual channel system, junior school

Here is a considerably more elaborate arrangement, with no fewer than five centers of activity fully developed for diagrammatic purposes. Studio and control room remain essentially the same in arrangement, except that a full-sized console replaces the desk-mounted panel, incorporating recorder and dual-speed playback, and a separate equipment rack is used for all incoming and outgoing connections, power amplifiers, etc. Input circuits shown include 2 outside lines, 1 studio mike, 1 mike at press box in gym, 1 line from auditorium where a small pre-control unit on a pedestal makes various combined pickups from 4 mikes on the stage and from sound projector, for forwarding to the central control for redistribution. Small auditorium and adjuncts at head of plan are a nicely integrated and isolated audio-visual center.

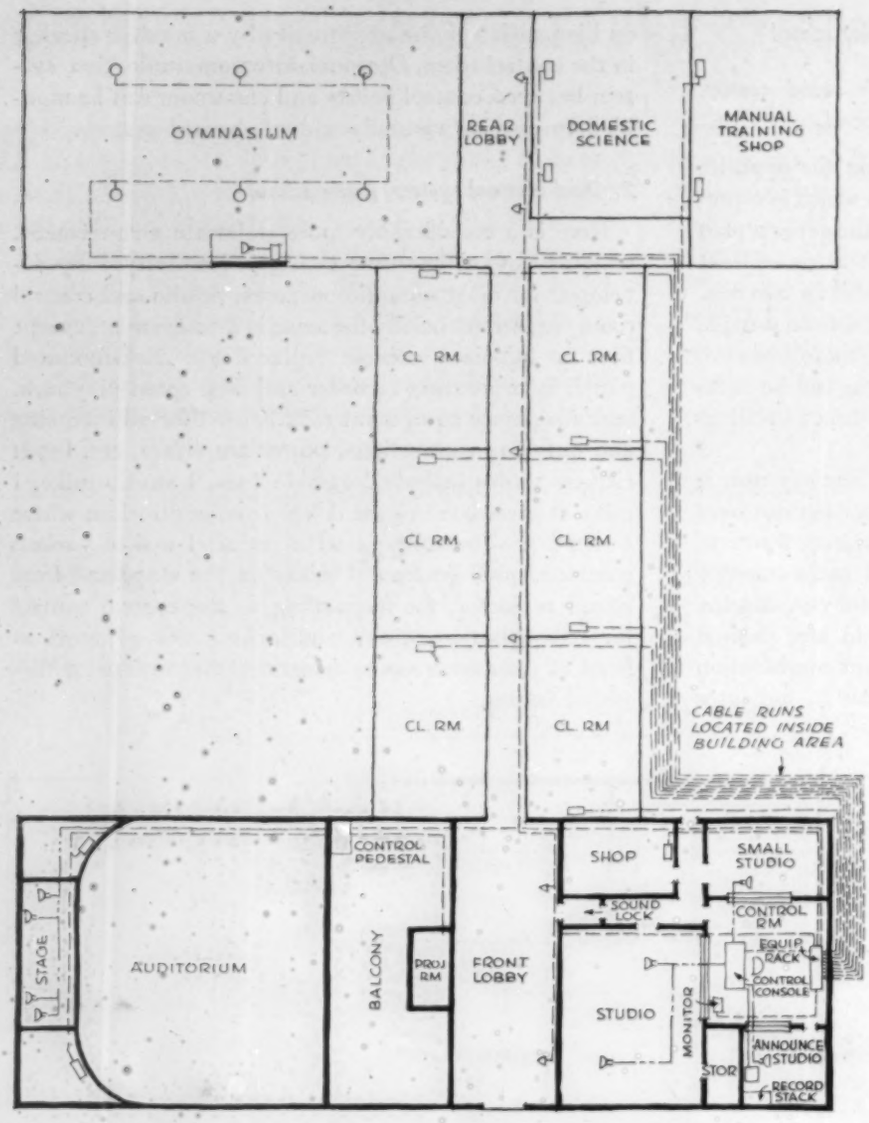
Equipment rack





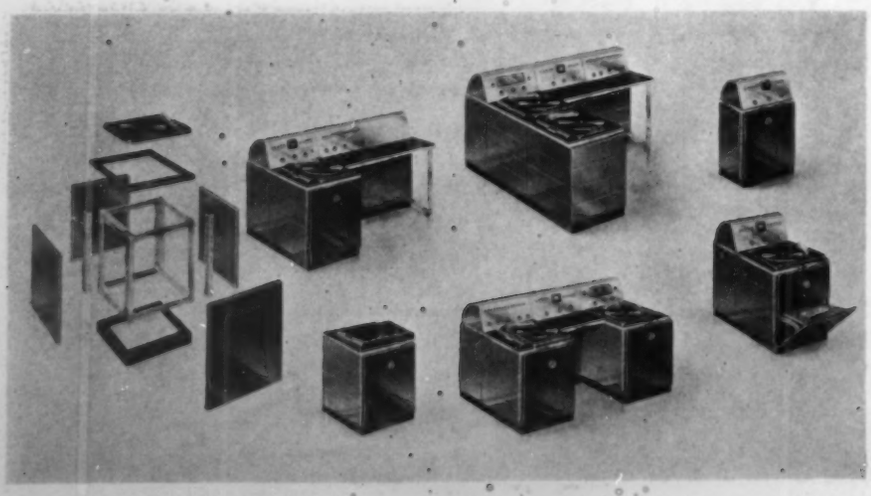


Console with playback turntable at left and recorder at right



3. *Dual channel, junior or senior school*

Here we have a control room that has a 3-way connection with a large studio, small studio, and announce studio as part of a radio laboratory opposite the main auditorium. The auditorium has the same equipment as in (2), previous page; but there is added a shop for repairs and instruction. The "announce" studio has high utility, providing for storage of records and other materials.



Courtesy RCA

Perspective drawing shows one manufacturer's school equipment, all combinable on a modular basis on unit chassis

Studio and control room criteria

The studio and control room area will need special consideration and treatment. The following is a list of criteria which should be met:

1. Location should be in the quietest part of the school plant.

2. Air conditioning is needed in studios and control areas for comfort and heat dissipation from equipment.

3. Sound conditioning of the entire area. Conduits, both intake and exhaust, should be baffled, insulated, and, where possible, floated.

4. A means of communication between studios and control room should be readily available at all times.

5. Doors leading from the sound lock should be of a quiet-closing and sound-insulating type, and allow for the easy passage of grand pianos.

6. Storage facilities are needed for equipment.

7. Fixed plate glass windows between studios and control room should be double ¼-in. plate glass with a minimum of 1½-in. dead air space between panes. Viewing area need not be lower than about 36 in. above floor level or higher than 66 in. above floor level; must be wide enough, side to side, to afford full vision.

8. Conduits, 1 in. or larger, from the exterior of the building to the control room, exclusively for telephone and communication.

9. Silent clocks with sweep second hands in studios and control room.

10. Locate transformer starters for fluorescent lights outside studios.

11. Control of all lighting in studios should be centralized in control room.

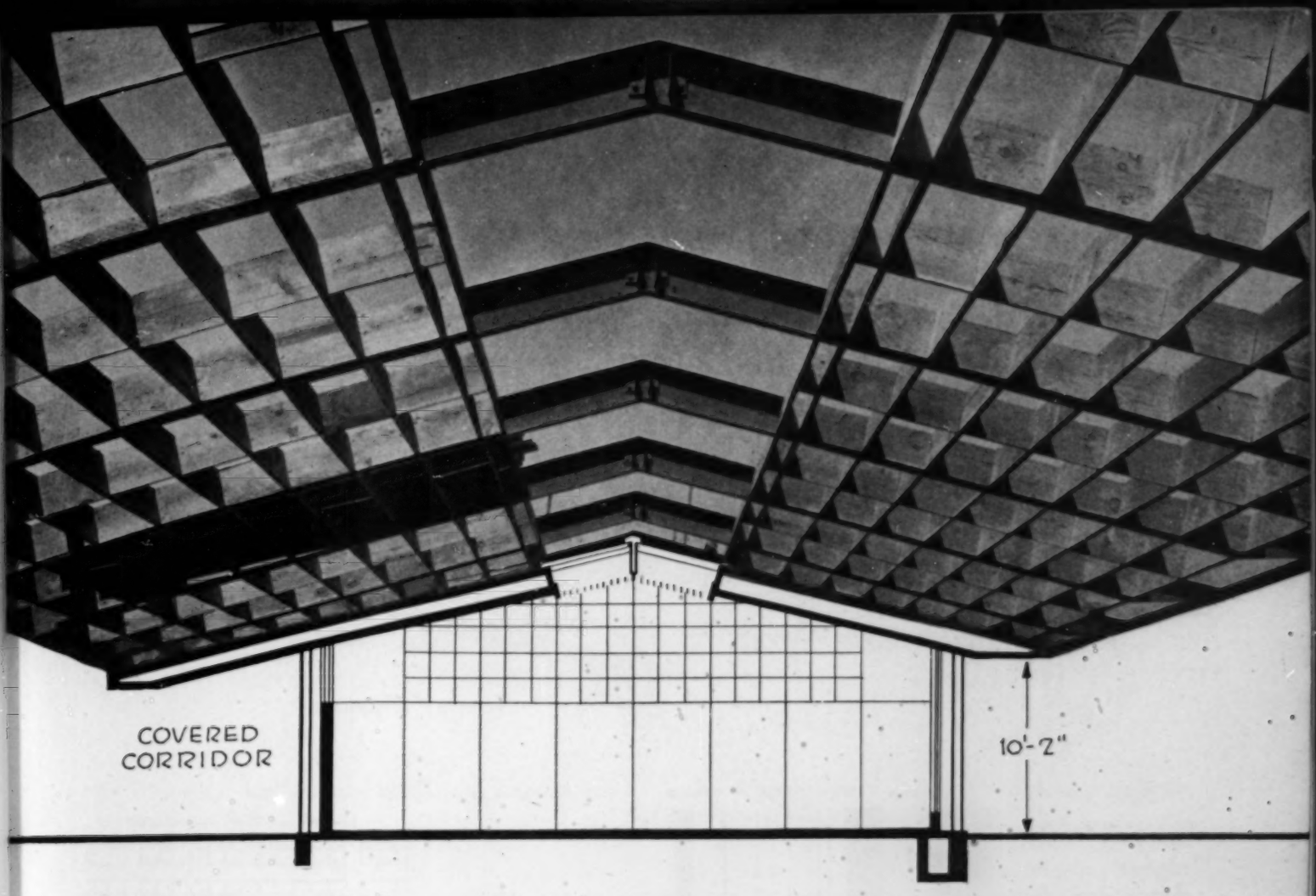
12. Service wiring having minimum capacity of 20 amps. needed in studios and control room.

13. Control panels to be independently lighted.

14. Use troughs or overhead supports for microphone cables to prevent damage.

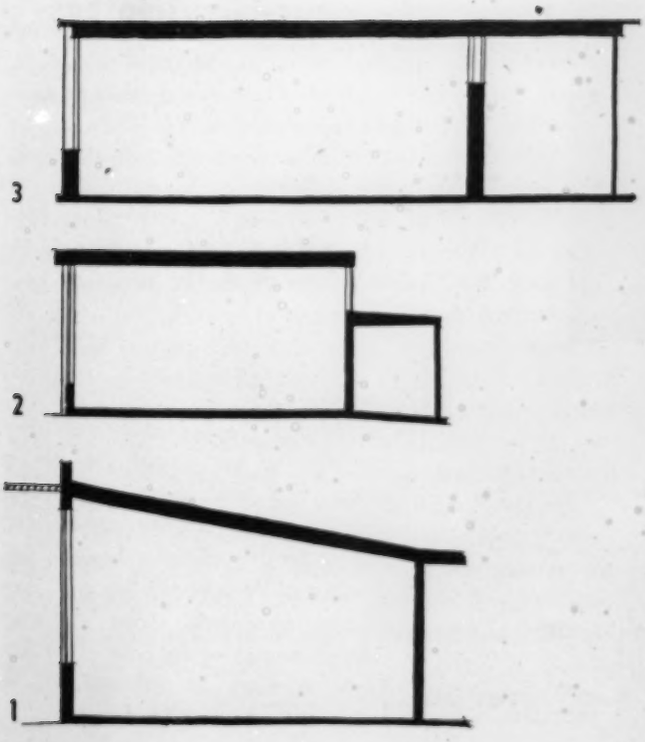
15. Studio windows in outside wall should be double-glassed and sealed.

16. A signal light fitted to mike stand should be so fitted as to indicate positively when mike is alive.



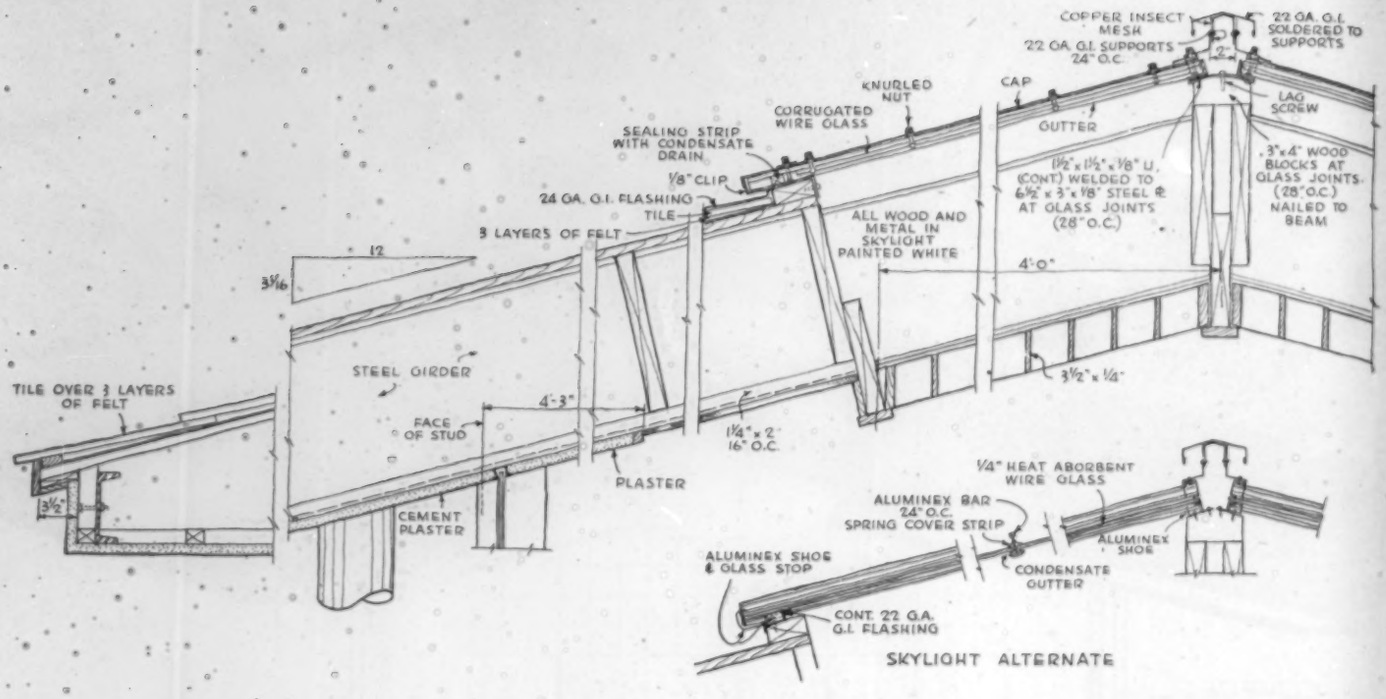
"TRI-LATERAL" LIGHTING, PANEL HEATING

Laurel Creek School, California, Franklin, Kump & Falk, Architects-Engineers

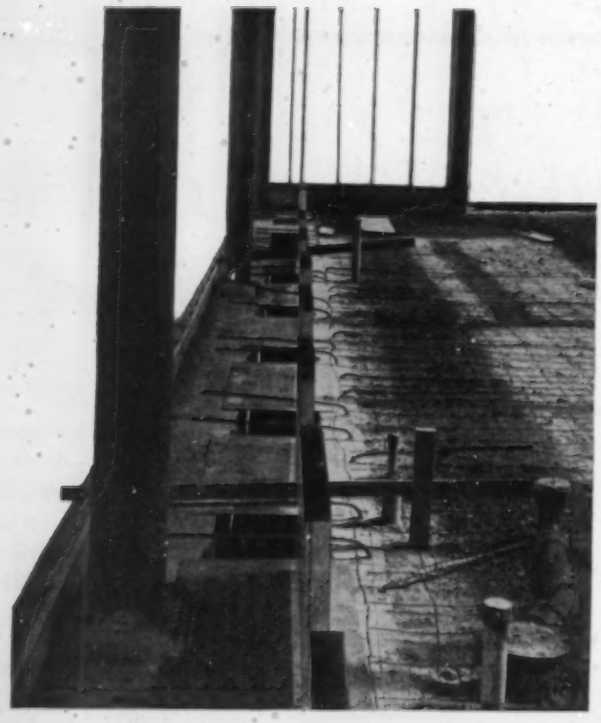


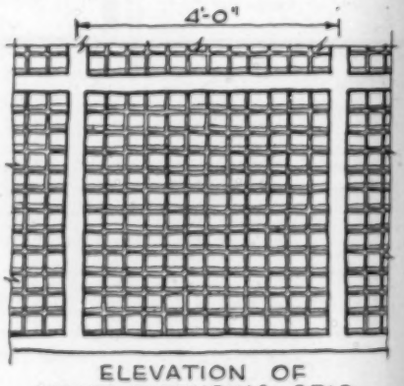
A SCHOOL type so different as to be virtually new is seen in the composite illustration above. Faced with the problem of getting additional light for the new deep 32-ft. square classroom, a number of architects have been pushing back light sources such as clerestories over the middle of the room. Here the solution is astonishingly direct and obvious. To obtain more light overhead (the best kind of light) you bring it straight down from the sky through a skylight. Structure is simple and the building shape classically quiet, child-scaled, satisfactory. It presupposes, of course, square classrooms, a single-loaded corridor, a one-story structure.

The composite view (not 100 per cent precise) shows the roof under construction, superimposed upon a vertical section. Below are seen previous steps in an evolution now nicely rounded: (1) tall windows in a relatively high narrow room give satisfactory unilateral performance; (2) bilateral light is added from clerestory above southern corridor; room can widen; (3) problems of flashing eliminated and glare of southerly sun through clerestory minimized by a single slab roof. Finally, we

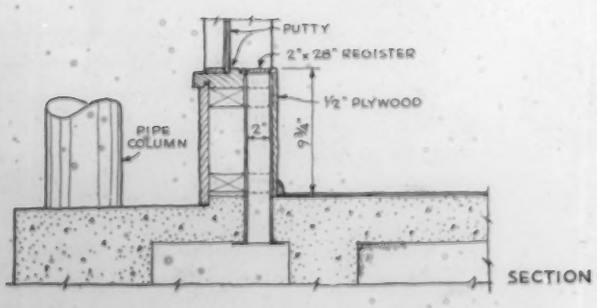


SKYLIGHT ALTERNATE



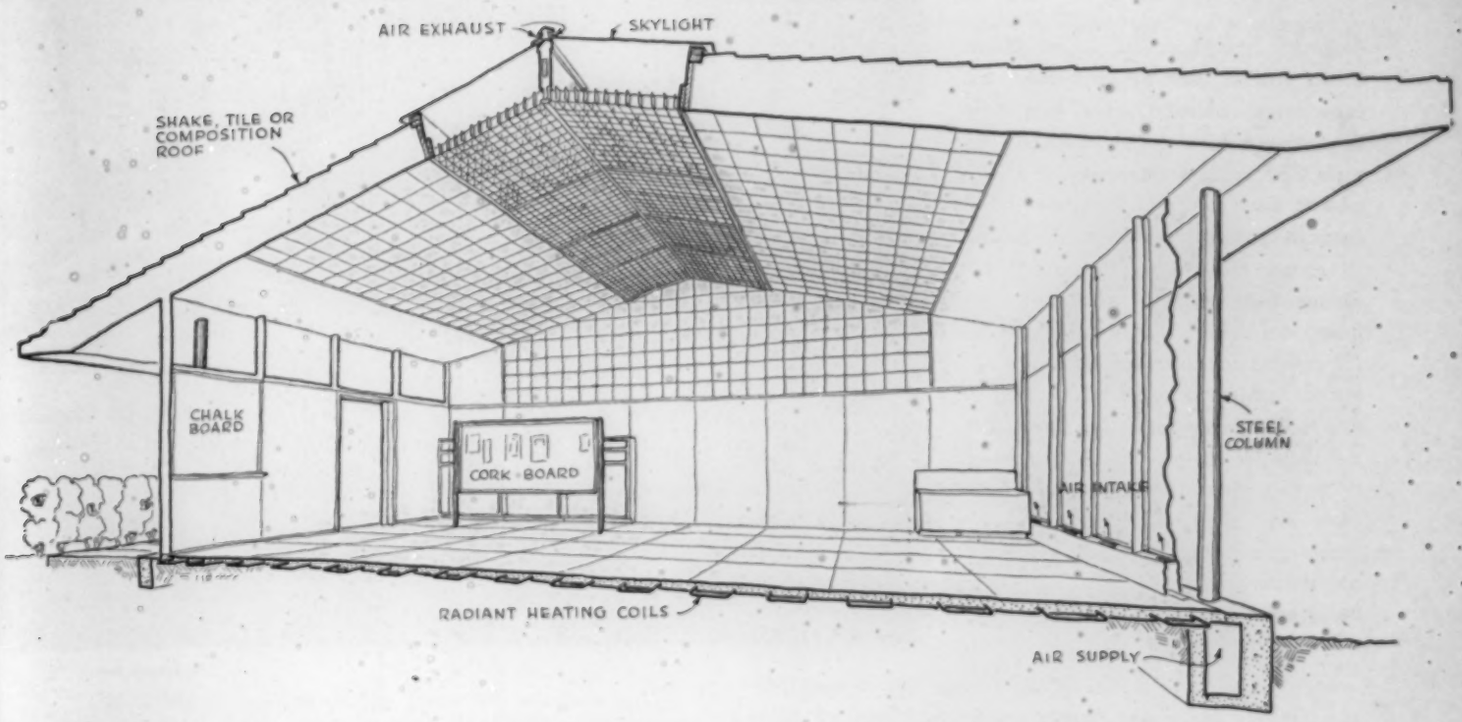


ELEVATION OF LIGHT DIFFUSING GRID



SECTION

Details and progress photograph show integration of light controls and heating system. Top, roof construction showing alternate skylight schemes and diffusing grid under the skylight; beneath this, elevation of the light-diffusing grid. Construction photograph shows ventilation ducts in position at the base of the full-height windows as indicated in the section at the bottom of the page



get trilateral lighting, as seen in the large diagram and perspective.

Sketch and details on these two pages show how the system is carried out and integrated with panel heating. The plywood egg-crate baffle acts as diffuser and dispels glare. An interesting detail is the substitution in this school of round steel columns for the H-shapes of earlier Kump postwar schools. These stand outside the curtain wall, not in it.

The grand effect is to provide a uniformly bright, temperate, fresh interior environment requiring not a stroke of effort by the teacher. The innovations were considered important enough not to wait for completion. The finished school will be presented in a later RECORD.

ZONED PANEL HEATING, FULLY AUTOMATIC VENTILATION

TEACHERS in this school have complete freedom from fussing with heating and ventilating controls because of the balanced automatic design of the system. Laurel Creek School is the sixth large radiant heating installation designed by these architects. (Among them are Campbell School, Sunnybrae School at San Mateo, and White Oaks School at San Carlos — ARCHITECTURAL RECORD, March 1946, pp. 100–107.) It is the first, however, in which windows are fixed, with provision for fully automatic ventilation as well as heating. The basic heating system is one of radiant floor panels — supplemented and balanced by forced warm air which serves (a) to overcome initial lag, (b) to balance window heat loss and overcome condensation, and (c) to perform the ventilating function without drafts. This dual system falls in with a major trend in school heating.

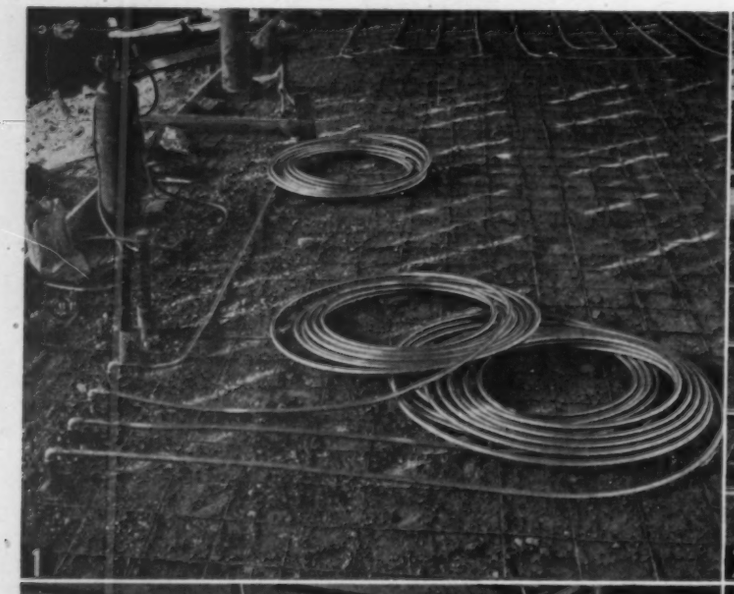
As shown in the photographs on the following page, floor panel heating is provided by copper coils in the 4-in. concrete floor slab, for circulation of low-temperature hot water. All copper coils are tested under 300 psi before concrete is poured.

Heating will be zoned for individual classrooms. Temperatures are controlled in each room by a pneumatic room thermostat operating a pneumatic by-pass valve. A manifold is built into the side wall. Recommended practice is to operate hot-water circulating pumps continuously, though at a minimum rate at night, because once circulation is stopped and pipes and floor are allowed to cool completely it may take from 10 to 12 hours to regain desired floor temperature. Any early-morning deficiency can be overcome, however, by higher temperature in the forced air.

Air is introduced into the classroom by a system of ducts spaced at regular intervals along the window walls. Exhaust is provided by a vent in the central skylight. Incoming air, filtered and warmed to a temperature of from 65 to 70° F., is supplied at a rate of 30 cu. ft. per minute per person (California Building Code does not cover rate of fresh air supply, so recommendation of A.S.H.V.E. was taken as standard). It is estimated that this will mean about eight complete changes of air per hour in a classroom measuring 32 by 32 ft. This type of ventilation would also permit room cooling in hot weather by minor modifications.

Progress photographs of Laurel Creek School radiant heating installation (an experienced two-man crew took only three days to form copper tube coils for eight 32-ft. square classrooms and wire tube to steel matting). Top view shows separate zoning for four rooms. Below, (1) copper tubes ready for coiling; (2) radiant heating coils attached to the baseboard before concrete slab is poured; (3) pouring concrete floor slabs — workman at left is raising the steel netting so that radiant heating coils are centered in the slab; (4) using a troweling machine to surface the finished concrete floor. Note ease of access because of steel-frame supports, widely spaced. This also puts structure quickly under roof, the frame being entirely independent of the curtain wall and self-braced

Philip Planert Photos



PERFORMANCE CODE FOR NEW HEATING

New York State recommendations contain many novel elements

PROBABLY the most discussed event in the past year in the realm of school heating and ventilating was the appearance of the 1946 code of recommended practice for New York State.* Prepared by a committee under the guidance of Dr. C. E. A. Winslow and Dr. P. E. Nelbach of Yale, the booklet makes several very significant departures:

1. The approach is made from a thorough analysis of basic physiological principles, not from handbook rules.
2. A big reduction in the fresh air requirement in classrooms puts the intake capacity at 15 cubic feet per minute per child, not the customary 30 CFM of the ASHVE Guide. Moreover a special warning is issued and precautions are taken *against over-design*.
3. Standards set are entirely performance standards. Any type of heating and ventilating system which meets these standards can be approved.
4. *Mechanical systems are not mandatory.*
5. There is considerable discussion of "open-window" methods of ventilation.
6. The combined effect of these stipulations is to give greatly increased initiative and incentive for invention to the architect.

Two excellent brief chapters on "Physiological Objectives" and on "Specific Recommendations," together form a concise textbook on the general subject for the architect.

Physiological objectives

The consultants remark that "over the past years we have fallen into the habit of thinking too quickly in terms of mechanical equipment and structural details. All attempts to approach from . . . an inventory of the equipment and devices available . . . are inevitably shackled by past mistakes . . . Future mechanical invention is not stimulated, for no new goals are set to be reached."

As a result of the biological research, the stipulated rate of air intake is put at 10 to 15 cubic feet per minute per pupil in ordinary classrooms, rather than the 30 CFM established by custom and the ASHVE Guide. The higher rate is based, according to the consultant, on mistaken conclusions reached in 1863! (Other States, such as Michigan and Connecticut make the same stipulations as New York, but without explanation.)

Over costly installations of the past have led the department to warn architects, "The Commissioner's approval will not be given on plans and specifications which provide an over-design unless there is first filed . . . a formal resolution of the board of education stating that in the board's judgment such over-design is needed and requesting the Commissioner's approval of the over-design."

Methods of Attainment

Although the New York Division sets forth deliberately to stimulate *any* fruitful procedure capable of meeting the stipulated standards, certain general types of heating and ventilating disposition are described and discussed.

Systems described in detail include: (a) direct heating with window air supply and duct exhaust with central fans; (c) direct heating with forced unit ventilator air supply and corridor gravity exhaust; (d) forced warm air with central or zone fans; (e) panel heating with window air supply and duct exhaust by gravity or central fans.

Architectural design: smaller cubage, new envelopes

An integrated approach results at once in changes of building shape, orientation, detail, and equipment. Thus a concomitant of the new regulations is that architects are permitted to lower ceilings to 11 ft. 6 in. in standard classrooms of 22 by 30 ft. It is favorably mentioned that "recent trends in design indicate a tendency to divorce the ventilating function from the "window" by means of separate devices such as louvers. To the degree that natural gravity is depended upon to effect air movement, this influences architectural dispositions, encouraging new detailing by the architect.

Caution

Manufacturers of prefabricated heating equipment have been quick, on the other hand, to assert that any individually designed heating and ventilating system which seeks really controlled conditions within specified limits of tolerance must in the end take care of every function now served by mechanical systems. They have challenged the state to prove that this can be achieved except by another system equally mechanical. It could also be said that controls should not depend on teachers. The ultimate effect of the New York move may be to encourage new mechanical invention, based not on existing patents but on the competition of ideas.

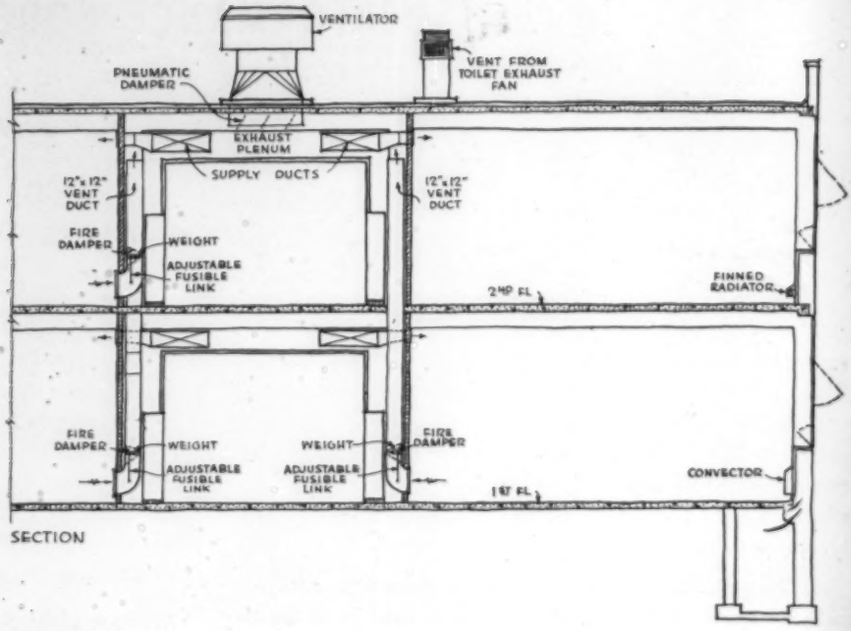
* *Heating and Ventilating Recommendations for New York State Schools. The University of the State of New York Press, Albany, New York, 1946.*

A BALANCED HEATING SYSTEM

Eberle M. Smith Associates

Architects-Engineers

In this school design, uniform heating of classrooms is provided by two kinds of steam radiation, and forced warm air



SECTION

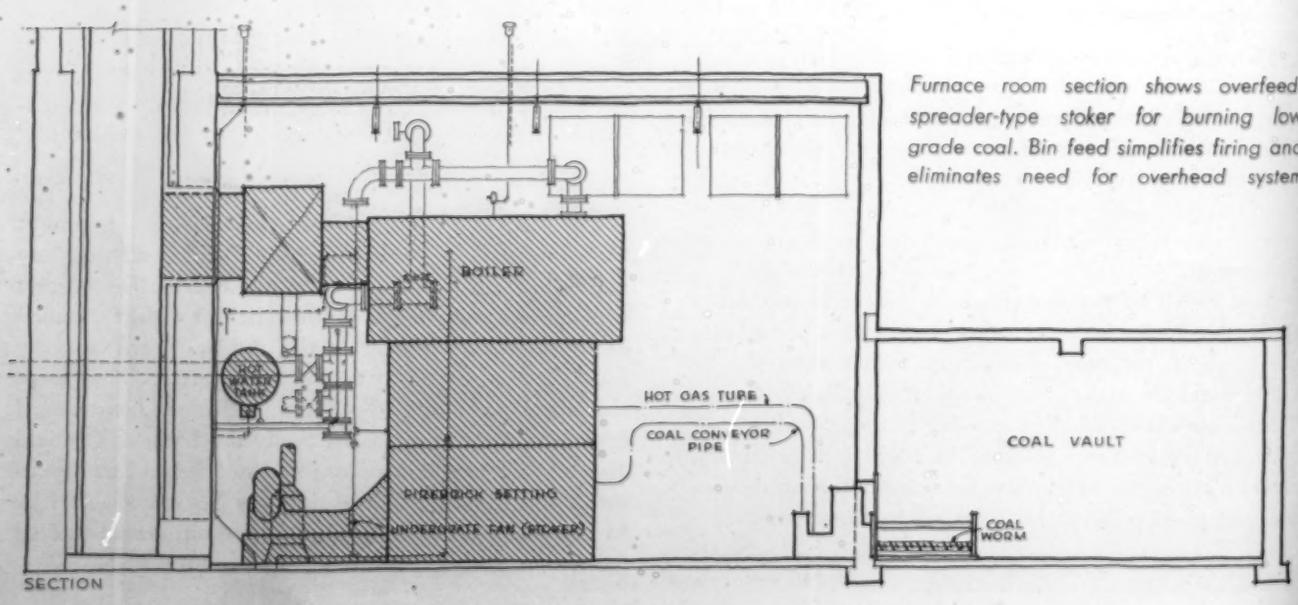
MODIFICATIONS of the conventional school heating system are seen in this design for a large high school near Detroit. For balanced thermal comfort, two kinds of heating are used: (1) a system of steam radiation, and (2) a central fan ventilation system supplying warm air.

As described by Arthur T. Bersey, Mechanical Engineer, the steam radiation is of two types. Second-floor classrooms have finned-tube radiation consisting of steel or copper pipe with fins, similar to heating equipment in railroad cars. Pipe lengths are welded together to form a radiator assembly that runs the approximate length of the room, then mounted on brackets and covered with a metal shield open at top and bottom to permit air circulation. The flow of steam is controlled by a pneumatic valve and a room thermostat.

In first-floor classrooms, a standard convector is placed beneath each window. Future additions are planned for the school which will necessitate some changes in classroom layout and the moving of partitions on the first floor. With convector-type radiators, this can be done without altering the heating system except for a slight change in the hookup of the radiator control system.

For ventilation and supplementary heating in the classrooms, forced warm air is introduced from trunk lines above the corridor ceiling. Each classroom, consisting of two bays, has an air intake and an exhaust for each bay, to allow for future changes of partitions and room rearrangement without affecting the air supply.

Furnace room equipment is shown in the sketch below. An overfeed spreader type of stoker permits use of low-grade coal. The bin-feed feature cuts down firing time and labor and also saves the construction cost of the overhead system (overhead bin or charging floor) which is usually required in large schools.



SECTION

Furnace room section shows overfeed-spreader-type stoker for burning low grade coal. Bin feed simplifies firing and eliminates need for overhead system

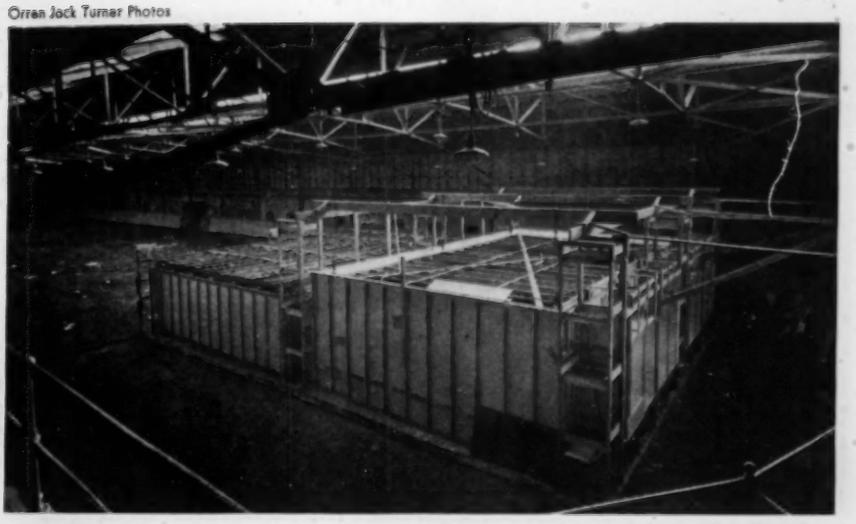
ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

FULL SIZE MOCK-UP FOR LIBRARY PLANNING

R. B. O'Connor and W. H. Kilham, Jr., Architects

Orren Jack Turner Photos



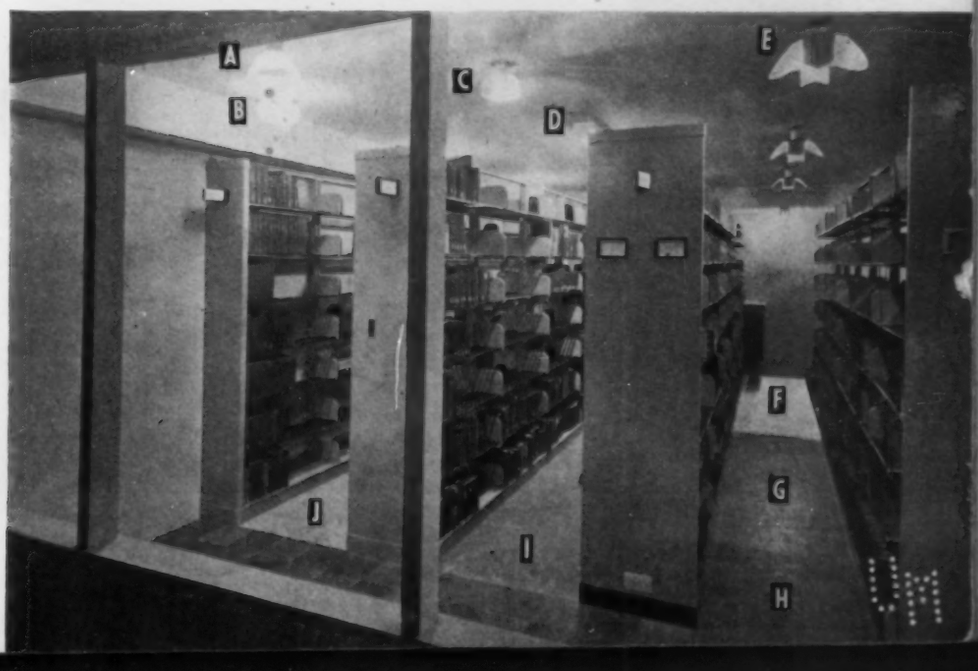
Above: Mock-up of four modular bays of Princeton library erected in the University riding hall. Note pulley arrangement for controlling front bay ceilings. In photo (1) below, scale may be observed over door, calibrated for various experimental ceiling heights

HAVING arrived at an overall scheme for the Princeton Library, pointed and trimmed to the general satisfaction of donors, university staff and student users, the architects-engineers carried the planning of details into three dimensionality with a full scale "mock-up" of four representative modular bays.

Approximate horizontal dimensions of bays in the new library will be 18 by 24 ft., determined on a basis of 3-ft. book stack multiples for utmost interchangeability in bay functions (see ARCHITECTURAL RECORD, Nov. '46, p. 115). Ceiling heights in the rear bays of the mock-up were tentatively fixed at 8 ft. 4¾ in. In the two front bays, however, provision was made for adjusting ceiling heights between the absolute minimum of 7 ft. 5½ in. and a maximum of 9 ft. 6 in. It is interesting that a majority of "lay" conferees at the mock-up, studying the effect of variations within this range, called for a fixing at 8 ft. 4 in. as the

Below (1, see plan): Door can be removed easily and partition substituted, or stacks substituted for partitions, or everything cleared out for flexible bay combinations

Below (2): A through E are stack lighting fixtures under consideration, with E (incandescent) held most economical but with glare objections. Type D (shielded fluorescent): best light, but expensive, delicate. B (prismatic incandescent), currently favored for efficiency and economy. F through J are various floor coverings under consideration



Above (3): Bay set up as model departmental conference or seminar room. Wall shelves will contain books used continuously in departmental operations. Experimental flooring here is half random wood plank, half parquet squares. General type and effect of lighting equipment in this bay were favored by library planning committee (see text)

height appearing to them most suitable, meeting very closely the recommendations of the technical experts with respect to lighting, duct work and architectural proportions weighted by considerations of cubic costs.

Similar popular and scientific reaction was solicited and accepted as criterional regarding other features in the mock-up. For example, one of the two front bays is equipped exclusively with fluorescent lighting fixtures of various types and makes; the other, with incandescent. Recently members of the Cooperative Committee on Library Building Plans were exposed to effects of both systems in partitioned segregation, and to the technical indoctrination of experts for one, or the other. Partitions between the bays (interchangeable with doors, book shelves or stacks) were then removed and a lay pronouncement, that members of the conference seated directly under the lighting of one system had a "healthier" appearance, was accepted as a primary determinant.

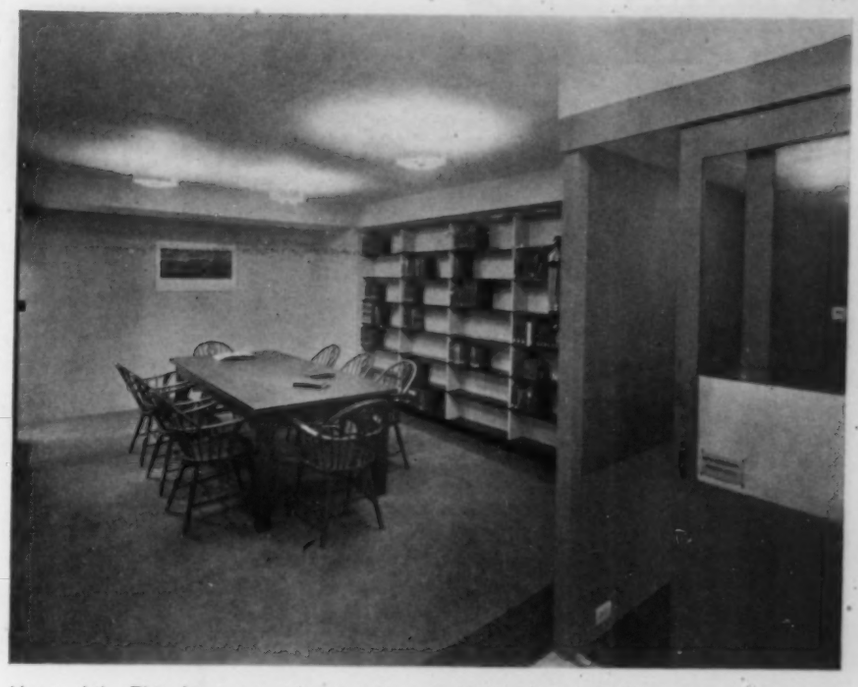
The removal of partitions quickly and

Below (5): Experimental carrels. A has been equipped in full detail (see page across). B through E are shells largely for lighting experimentation. B has fluorescent tube beneath book shelf; no general lighting. C has prismatic incandescent overhead fixture. D has drop-cord fixture (to be variously manipulated by student). E has fluorescent fixtures at back and to left above student. Adjustable fixture in A (page across) invented by Vinton Duffield of the Library staff, and overhead fixture in combination are currently favored

without special tools also demonstrated to the conference the flexibility in combining bays for various purposes that this type of interior space subdivision makes possible.

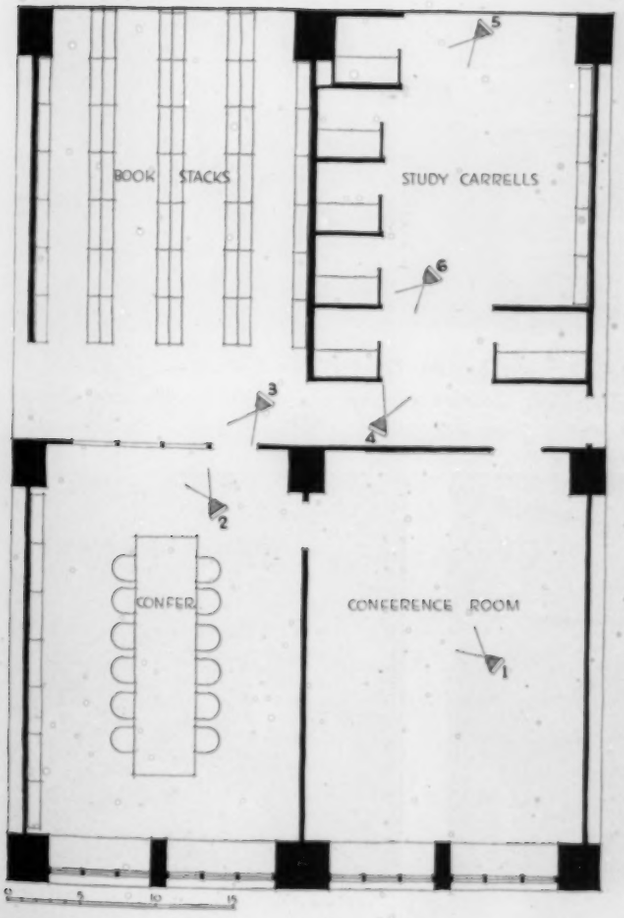
Other forms of equipment and materials were similarly installed in a variety of makes and types for technical experimentation and popular choice. Lay conferees were beforehand familiarized with the latitude and limitations set by the general structural system: concrete slab floors and supporting columns, with the interior of the latter carrying lighting conduit, piping, and serving as vertical ducts for ventilation.

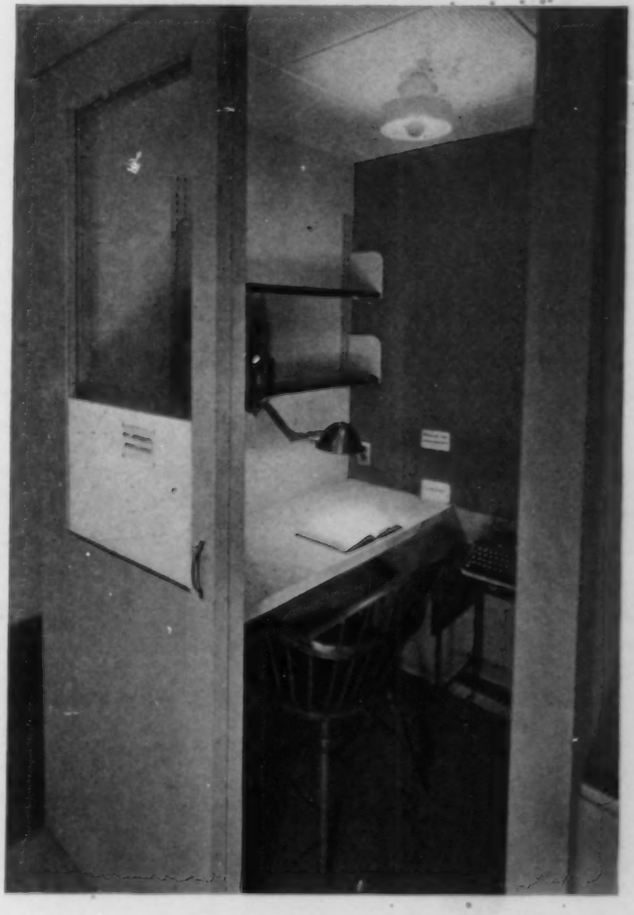
All stacks in the new library will be free standing. At present, there are four standard makes under consideration, varying in such details as bar or flat shelving, methods of attachment to uprights, etc. All have in common, however, the 3-ft. basis of convertibility so that bays may be variously combined or otherwise modified from stack areas to conference or seminar rooms, staff working space, or carrel groups.



Above (4): This bay not only contains experimental carrels but also demonstrates "browsing" alcoves within stack areas where students may sit down for extended spot examination of research material. A number of double carrels (example at right) will be provided for use of students collaboratively engaged, and for faculty members

Below (6): White portion of sliding door is frosted glass. Walls are faced from ceiling to counter height with cork tack board. Ceiling is acoustic tile. Horizontal duct work will pass between columns above tops of carrels with outlets into each





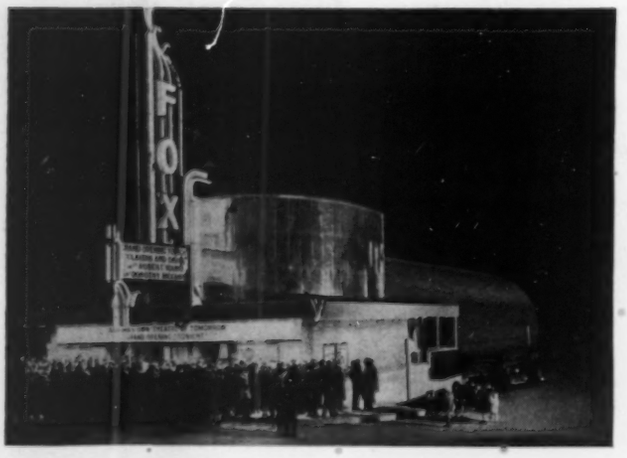
QUONSET HUTS ARE BACK FROM THE WAR

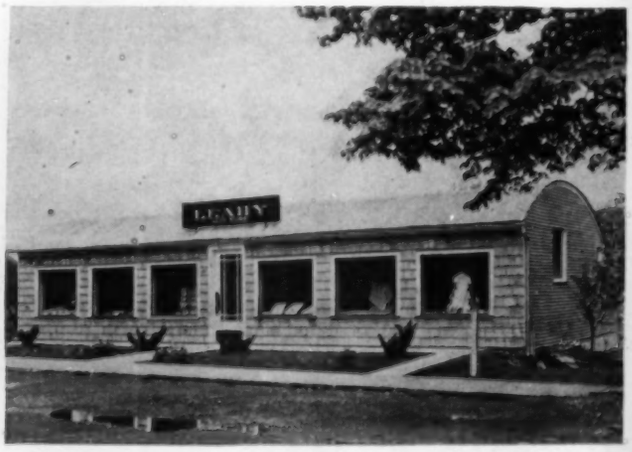
Known to G.I.'s from Attu to Reykjavik, these familiar steel tunnel structures are now appearing on the civilian scene. The manufacturer (Great Lakes Steel Corporation) has compiled a list of 257 peacetime uses, from architect's drafting room to turkey broodhouse.

Greatest demand is for the 20 ft. and 24 ft. wide Quonsets. Other basic widths are the 40-ft. and multiples of the 20-ft. arch in multi-arch construction. Lengths, of course, vary.

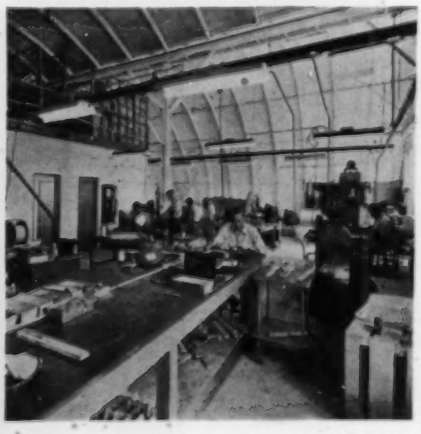
These structures impose certain conversion problems, but as an interesting architectural form and as an emergency construction method, using a minimum of materials vitally needed for housing, the Quonset is worth watching.

Quonset sections are combined with masonry in this permanent two-classroom school





(Above) Left: Auditorium of small movie theater at Aurora, Colo., is a 40-ft. wide Quonset. Right: Cut-away front and wood shingles disguise the Quonset origin of this store building at Sayre, Pa. (Below) Left: 20-ft. Quonset can be converted into a cattle barn. Center: Multi-arch construction provides roomy industrial shop. Right: Supermarket in Greenville, Mich., is adapted from a Quonset "40"



FACTORY-PRODUCED HOUSES IN THE NEWS

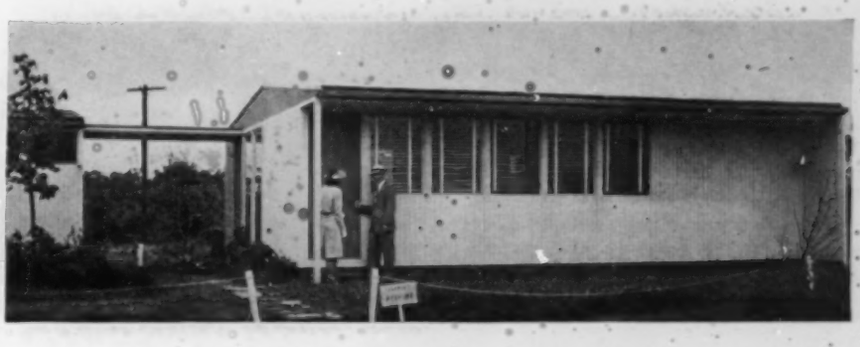
The still unsolved problem of providing housing for veterans continues to focus attention upon factory prebuilt and mass-produced houses. At the time of Housing Expediter Wilson W. Wyatt's resignation in December, the future of the veterans housing program became less clear, but President Truman did state with regard to factory-built houses that "government loans and market-guaranty contracts will be continued."

Greatest strides in factory-built housing have been through the use of new types of wall panels and simplified construction methods. Among recent developments are the following:

Lustron Homes: With a goal of 30,000 prefabricated houses for veterans by the end of 1947, Lustron Corporation of Chicago has worked out a factory prebuilt house utilizing porcelain-on-steel panels as exterior walls and interior partitions. Originally developed as a decorative exterior "skin" on store fronts, gas stations, and theaters, the panels were next considered for use as actual walls in commercial buildings. When housing became an acute problem, however, efforts were turned toward the production of the enameled steel house, which excited considerable interest on the part of Wyatt and the NHA.

The Lustron house is approximately 32 ft. by 36 ft. Framework is made up of specially designed steel members, fabricated into sections, 8 ft. by 8 ft. Structural roof members are of the truss type. Porcelain enameled steel panels form the exterior walls of the house, with interlocking edges sealed by a resilient plastic gasket. Insulating material forms a part of the wall. No bearing partitions are required. Ceiling panels and partitions are finished with non-gloss porcelain enamel. All window frames, sash, and screens are aluminum.

Heating will be by the ceiling-type warm-air radiant method. Hot air is forced into the ceiling chamber and circulated by a system of baffles. A small portion of the heated air is directed into the space between inside and outside panels of the exterior walls, and recirculated. This is to warm the exterior walls and eliminate condensation on structural members and outside panels.



General Panel's "B-16" House: General Panel Corporation of California has announced 1947 plans to construct 10,000 of its "B-16" houses in the wartime Lockheed aircraft factory, following receipt of a government letter of intent for a $22,000,000 housing program in that area. The house will be a 4-room structure, 30 ft. by 26 ft. 8 in., based on a construction system designed by Konrad Wachsmann and Walter Gropius, chairman of the School of Architecture at Harvard. (AR, April, 1943, p. 50).

Basic unit of the system is an insulated panel, 3 ft. 4 in. by 10 ft., formed of a strong frame with plywood face on one or both sides and with rockwool insulation between. Panels are joined by patented locking devices which are factory installed and provide 8 rigid locking points on each panel. Plumbing and electrical wiring, as well as fixtures, can also be factory inserted.

While the "minimum" house will have painted plywood for interior wall finish, it is expected that grain veneers ultimately will be available at a corresponding increase in cost.

Completely constructed and ready to move into, the house is expected to sell to veterans for about $4,500, equipped with plumbing, bathroom and kitchen fixtures, water heater and floor furnace. A garage costs an additional $750.

Vultee House: Consolidated Vultee Aircraft Corporation may enter the housing field with an aluminum and plastic house, designed for temperate climates. Walls will be of sandwich-type construction. The company does not expect "any reluctance on the part of communities to modernize local building codes to conform to new building techniques."

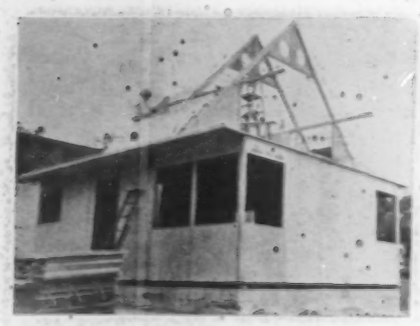
Outside appearance of the house under study can be modified by arrangement of patio walls supplied with the house. Cost to the buyer would be about $7,000 to $8,000, including lot, for a 2-bedroom house, equipped with refrigerator, range, water heater, and complete bathroom, kitchen, and space-heating equipment. Model below shows house under study, with several of the possible patio arrangements. Variation in color also will help avoid the stereotyped effect.

ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

Harman Homes: Patented steel framing and sheathing are featured in the house developed by William H. Harman Corporation of Philadelphia, which has received from the government a guaranteed market contract for 10,000 houses. Framing is specially treated to hold a painted surface and interconnects with sheathing to form a monocoque shell for the house. Non-rigid type insulation is placed between.

Contract calls for eight different plans, of which two have been released. The first of these contains a living room with adjoining dining area, three bedrooms, bath, and optional utility room and garage. The second has a separate dining room, and only two bedrooms.



HomeOla Houses: The first guaranteed market contract awarded by Reconstruction Finance Corporation is held by The HomeOla Corporation of Chicago. A preliminary report of tests by National Bureau of Standards gives evidence that parts tested exceed requirements of the U. S. Commercial Standard for Prefabricated Houses.

First houses of this type were produced in 1932, and over 10,000 are now being lived in throughout the country. F.O.B. factory cost of all factory furnished parts are quoted as $3,021 for a 1½-story house and $3,648 for a 1-story. These costs include everything necessary to complete the house and its services with exception of kitchen stove and refrigerator. Costs of the completed house vary, but are said to be in the range of $6,000.

Wall panels are insulated double-faced resin-glued plywood building panels of stressed skin design, built to resist wind loads of 25 lb. per sq. ft. and tested to 161 lb. per sq. ft. They are surfaced on both sides with waterproof Douglas fir plywood.

Floor framing is of fabricated structural steel, forming a chassis, 24 ft. by 32 ft. Roof framing consists of fabricated structural steel roof trusses of high-tensile steel T-sections. The roof is of aluminum ribbed roof sheet with patented cap, strip, lock joint, and H-clamps, permitting erection from the inside.

Basement is optional. Foundations may consist of poured concrete rim, block concrete rim, concrete block or masonry piers, steel or wood posts.

Compact electric furnace for home heating in localities where utility rates are low

PRODUCTS for Better Building

ELECTRIC FURNACE

A new electric home furnace resembles more closely kitchen equipment than the conventional central heating plant. Heart of the furnace consists of six patented elements used in heaters manufactured for submarines during the war, and Moduflow heating-coil control, developed by Minneapolis-Honeywell Regulator Co. The furnace, which is most suitable for Tennessee Valley states and the Pacific Northwest where utility rates are low enough to make this kind of heating practical, is being made in two sizes, one for houses with up to 11,000 cu. ft. of space and the other for houses with up to 24,000 cu. ft. Installed in a 10-room house of brick in Chattanooga, Tenn., well-built but not completely insulated, consumption for the 1945–46 heating season was said to be about 26,700 kilowatt hours at a cost of approximately $203, which complete insulation of the house would have reduced. Electromode Corp., Rochester, N. Y.

(*Continued on page 114*)

SCHOOL LUNCHROOMS AND KITCHENS

SCHOOL Lunch Division of the Department of Agriculture has undertaken a study of lunchroom and kitchen requirements for the nation's schools.* The accompanying plans are presented as suggested layouts and kitchen requirements for lunchrooms with varying meal loads. Plans are based on a typical schoolroom "module" of 22 ft. by 37 ft. 6 in.

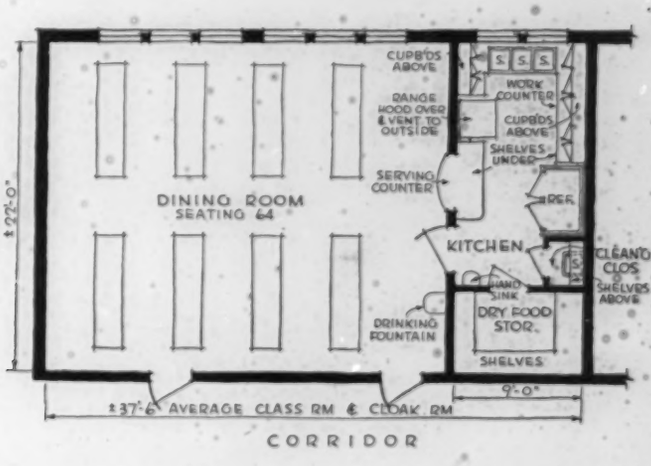
In planning dining room space, 10 to 15 sq. ft. should be allowed per person seated. High schools take the maximum amount. Number of children to be seated depends upon total meal load expected, divided by number of shifts or lunch periods. Tables should be placed so that there is an 18-in. aisle or wider between occupied chairs. Main aisle should be at least 3 ft. wide.

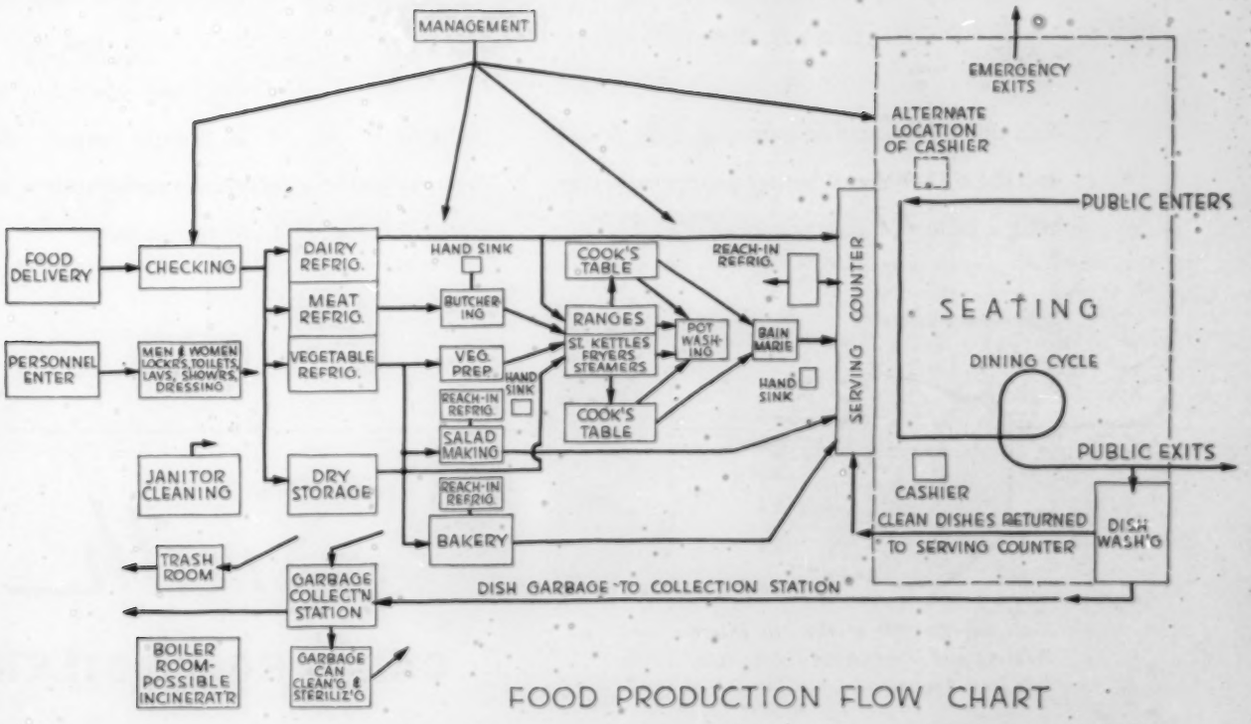
Size of kitchen depends upon total meal load (which is unaffected by number of shifts) and the type of lunch to be served. Its planning, therefore, is the combined work of architect, cafeteria director, and equipment manufacturer.

*Chart and plans are the work of Margaret M. Morris, School Lunch Division, and Erwin G. Adelberger and Ivon H. Blackman, Jr., Architects, Industrial Feeding Division, Department of Agriculture.

4 to 6 Classroom School

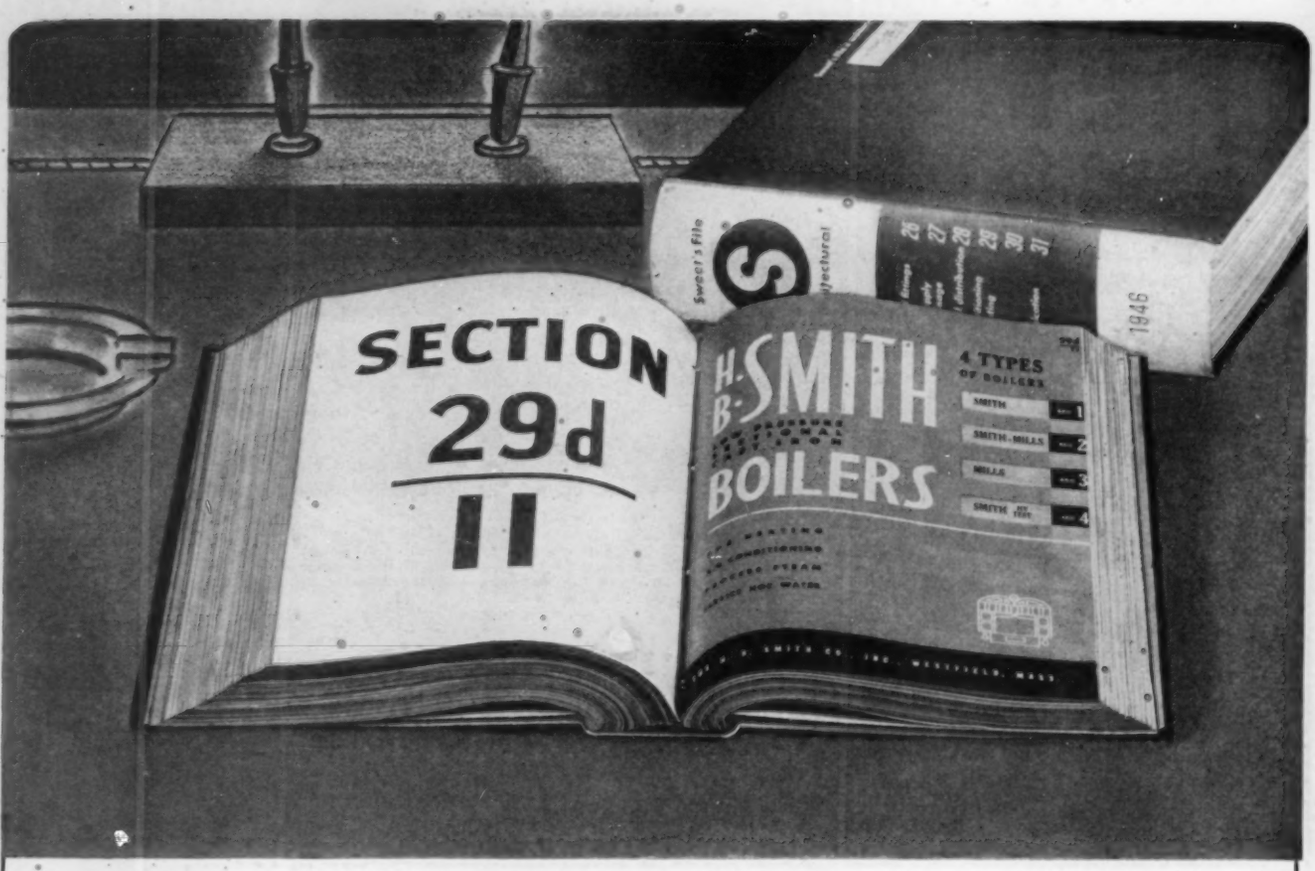
— Meal Load 100 to 150





FOOD PRODUCTION FLOW CHART

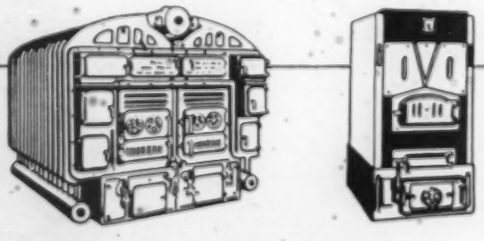
(*Continued on page 109*)



"Here's the dope for that new boiler job"

When you need clear, concise, complete specifications and engineering data for that new boiler plant, turn to the H. B. Smith catalogue in Vol. 5 of your 1946 "Sweet's." There you'll find the information necessary to help you select the *right* boiler, whether your client is planning a factory, home, school or office building.

And if yours is a special problem, personal consultation with an H. B. Smith sales representative may be the solution. Just turn to the catalogue's back page and you'll find the address of the H. B. Smith branch office nearest you — a technical representative will be glad to call and talk things over.



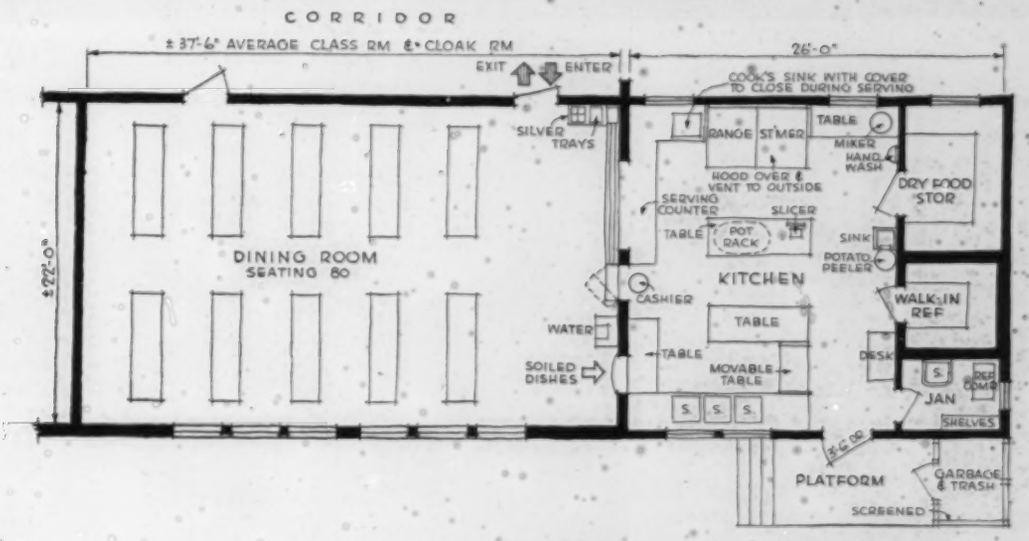
Visit our Exhibit at the 7th International Heating and Ventilating Exposition, Lakeside Hall, Cleveland, Ohio, Jan. 27-31, 1947.

H.B. Smith

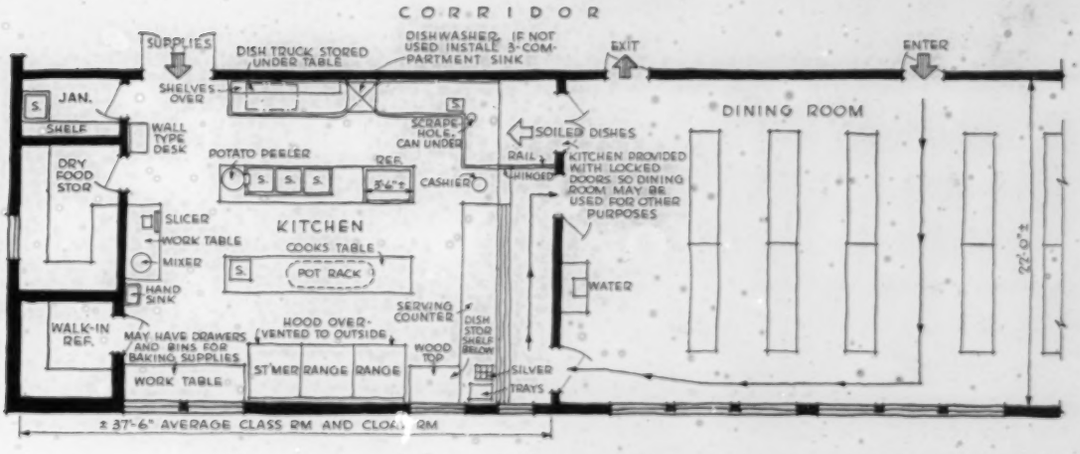
CAST-IRON BOILERS

THE H. B. SMITH CO., INC., WESTFIELD, MASS. Offices and Representatives in Principal Cities

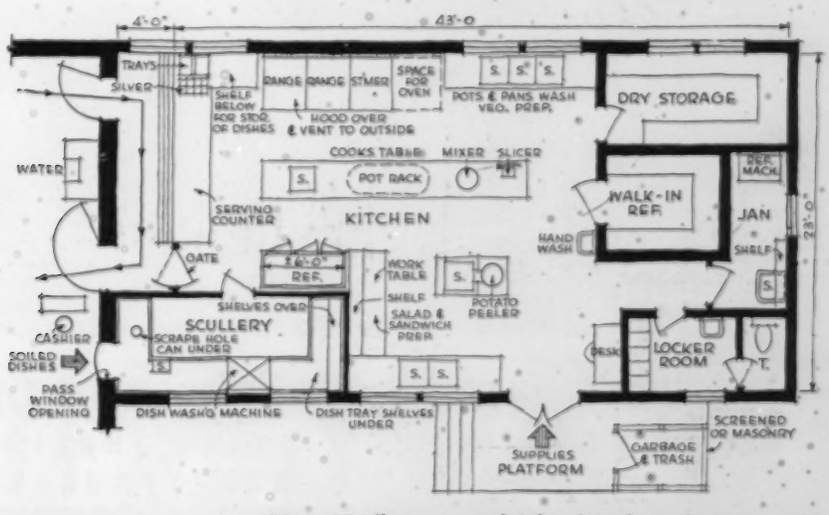
SCHOOL LUNCHROOMS AND KITCHENS



6 to 10 Classroom School — Meal Load 150 to 250

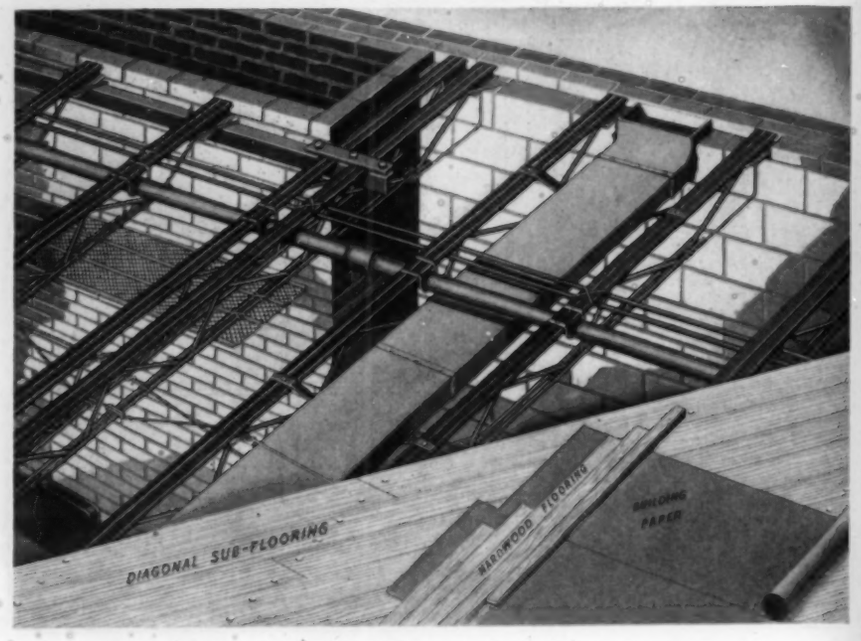


10 to 14 Classroom School — Meal Load 250 to 350



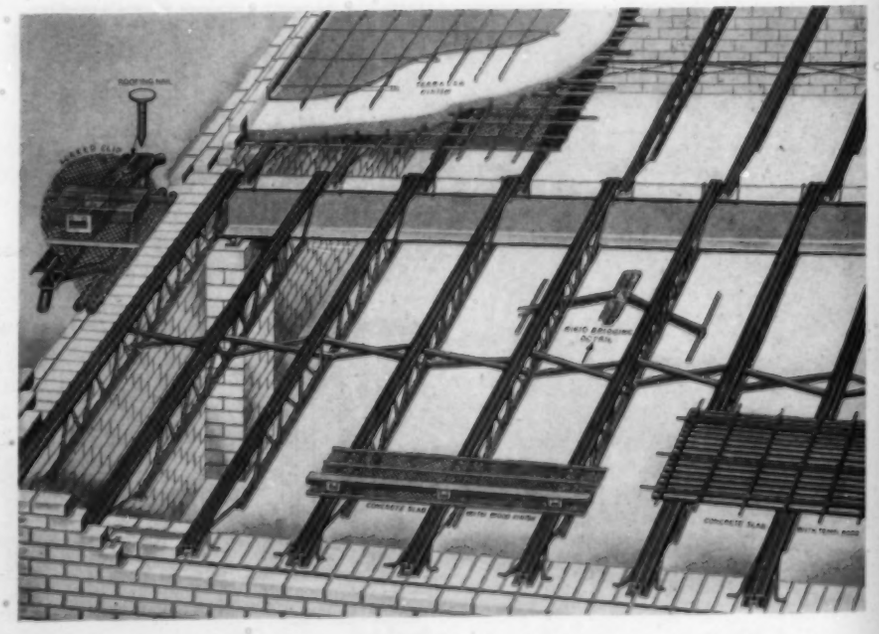
14 to 20 Classroom School — Meal Load 350 to 500

MACOMBER DESIGNED WIDER APPLICATION INTO AN ESTABLISHED PRODUCT



● Shown opposite is the Macomber V Joist in a typical residence floor system. The V Joist has the familiar open web, bar construction in universal use since its introduction in 1923. More space is provided for conduit, sheet metal ducts and conduit in this improved steel joist.

AN IMPROVED TOP CHORD SECTION NOW ADDS NAILABILITY FOR UNIVERSAL APPLICATION



This improved bar joist has a nailing groove the full length of the top chord. The result is a solid, secure fastening for floor or roofing materials. The illustration opposite shows the universal applications now made possible through the V Joist.

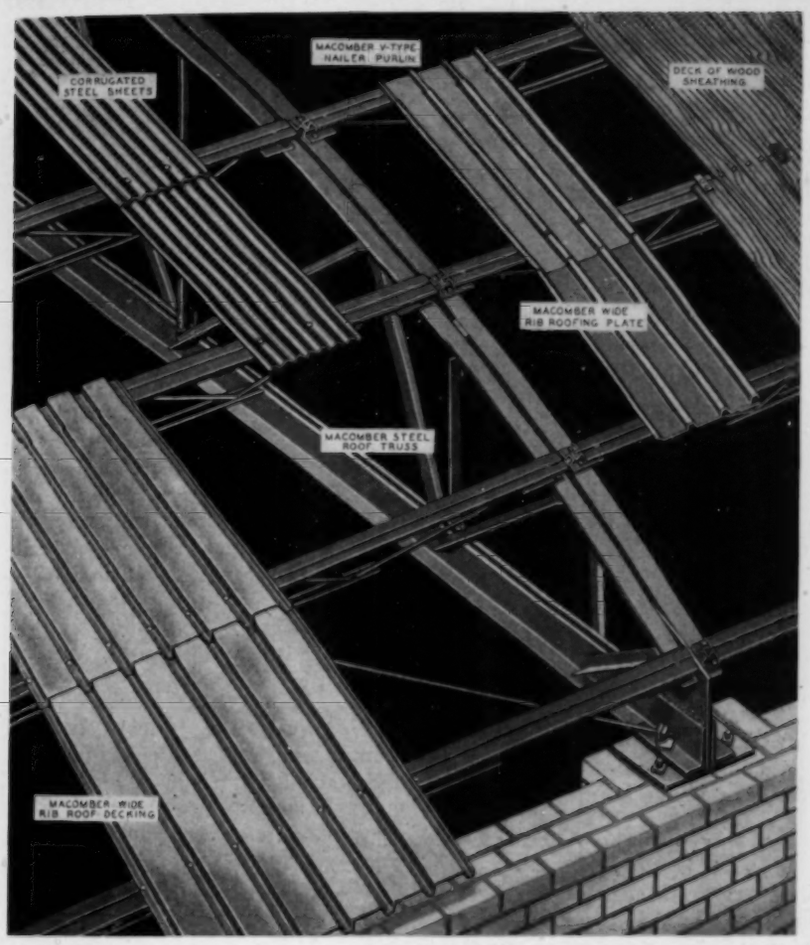
Sizes are determined from standard Steel Joist Institute Loading Tables. One joist now serves all purposes.

MACOMBER STEEL BUILDING PRODUCTS

STEEL JOISTS · STEEL PURLINS · STEEL ROOF DECK
LONGSPANS · ROOF TRUSSES · STEEL SIDING

SPEED FIRE-SAFE CONSTRUCTION

IMPROVED DESIGN ALSO PAYS DIVIDENDS IN ROOF CONSTRUCTION


MACOMBER V-TYPE NAILER PURLIN
CORRUGATED STEEL SHEETS
DECK OF WOOD SHEATHING
MACOMBER WIDE RIB ROOFING PLATE
MACOMBER STEEL ROOF TRUSS
MACOMBER WIDE RIB ROOF DECKING

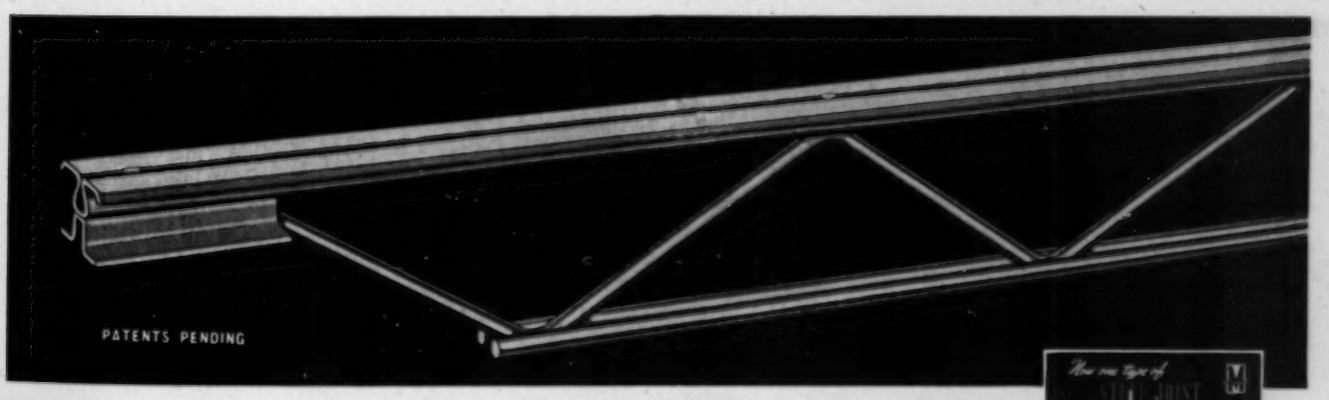
A Carefully Coordinated Service On The Entire Steel Structure

Shown opposite are various kinds of decking nailed to Macomber V Purlins. These all steel roof purlins give the designer free rein in the selection of deck materials. Steel deck can be nailed, welded or clipped. Wood sheathing or any type of preformed slabs can now be nailed direct to the broad surface of this improved steel purlin.

Using Macomber All Welded, Bowstring Roof Trusses or Longspans, V Purlins and Ribbed Steel Decking results in a roof system that is designed, fabricated and shipped from one source.

Shown below is the Macomber V Type Joist. When wider bearing plates and sag rod plates are added, this unit becomes the standard purlin.

See our catalog in Sweet's or send for Catalogs on V Joists and Purlins; Roof Trusses and Longspans; Ribbed Steel Roof Decking.



MACOMBER

INCORPORATED, CANTON, OHIO

MANUFACTURERS' LITERATURE

ALUMINUM ALLOYS

Heat Treating Aluminum Alloys. Process manual including a non-technical discussion of the metallurgy and heat treatment of aluminum alloys, recommended thermal treatments for the various aluminum alloys (in tubular form), and a more technical discussion intended for the metallurgist and operating personnel. Tables of mechanical properties also included. 144 pp., illus. Reynolds Metals Co., Dept. 47, 2500 S. 3rd St., Louisville 1, Ky.* $1.00.

AWNINGS

The Air-Conditioned Awning. Descriptive booklet on Lifetime Koolvent Ventilated Aluminum Awnings. Color illustrations of actual installations. Details of the Koolvent ventilating design, said to prevent formation of heat pockets and reduce summer temperatures under the awning. 4 pp., illus. Kool-Vent Metal Awning Corp. of America, Keystone Bldg., Pittsburgh, Penn.

CONCRETE SHRINKAGE

The Action of Embeco in Concrete and Mortars (2nd ed.). Discussion of shrinkage of concrete and mortar, its influence on durability and serviceability, the principal factors affecting it, and its control and elimination. Explanation of the principle of specially prepared metallic aggregate in controlling shrinkage. Includes charts, graphs, technical data tables. 34 pp., illus. The Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio.*

FIRE PREVENTION

Croker "A.B.C." of Safety (Catalog No. 46). Fire hose and extinguisher cabinets and racks, portable extinguishers, chemical engines, hose and hose couplings, nozzles, valves, etc. 34 pp., illus. Croker Fire Prevention Corp., 32 W. 31st St., New York 1, N. Y.

GAME ROOM PLANS

Ideas for Playroom Planning. Plans for basement recreation rooms — trophy and music rooms, children's playrooms, etc. Includes for the general public a planning kit consisting of a large cross-ruled layout sheet on which to draw basement outlines, and a full set of scale cutouts covering a large variety of basement and playroom appointments. Plans are based on use of automatic heating; booklet includes description of several oil-fired automatic heating units. 24 pp., illus. The Heil Co., 3000 W. Montana St., Milwaukee 1, Wis. 10 cents.

GREASE TRAP

A New Principle in Grease Interception: HydraFilter by Wade. Complete description of a grease interceptor, its construction and operating principle, design features. 6 pp., illus. Wade Mfg. Co., Elgin, Ill.*

HARDWARE

Donovan Awning and Casement Type Window Hardware for Use with Wood Sash. File folder containing complete descriptive literature and 3-in. scale details. Recommended sash sizes and various types of high window operators also provided. Universal Window Co., 950 Parker St., Berkeley 2, Calif.

INSULATED PIPE

Durant Insulated Pipe. Catalog giving complete information on Durant Presealed Insulated Pipe, for use in underground and exposed locations. Suggestions for handling and installing. Specifications, instructions for making field joints, applications. Table of weights. 42 pp., illus. Durant Insulated Pipe Co., Dept. AR, 1015 Runnymede St., P. O. Box 88, Palo Alto, Calif.

Sistemas de Conductos Tubulares Para Líneas Subterráneas y Aeréas de Vapor Petróleo y Agua Caliente. Catalog of Ric-Wil insulated pipe conduit systems, prepared in Spanish for Central and South American users. Gives full specifications, description, suggested applications. 12 pp., illus. The Ric-Wil Co., Cleveland 14, Ohio.*

INSULATION

Sprayo-Flake Sound Control, Thermal Insulation, Condensation Control. Characteristics of a process which fabricates and applies insulation in one operation. Advantages claimed. Application details. Tables of thermal and sound insulation values. Typical applications. 4 pp., illus. Sprayo-Flake Co., 2729 Irving Park Rd., Chicago 18, Ill.*

LIGHTING

Fluorescent Showcase Lighting. Bulletin describing a new streamlined fixture for showcase, wallcase and shadow box lighting designed for use in either modern or conventional type installations. Gives table of reflector trough sizes, wiring plans, full description of units. 4 pp., illus. Lustra Corp. of America, 40 W. 25th St., New York 10.

G-E Lamp Bulletin (Bulletin LD-1). A condensed text on the design and operation of incandescent, mercury and fluorescent light sources. The more than 40 topics covered include lamp economics, temperatures, voltages, auxiliary equipment, germicidal, infrared, sunlamps and glow lamps. Numerous tables, diagrams and charts. 76 pp., illus. Lamp Dept., General Electric Co., Nela Park, Cleveland, Ohio.* 40 cents.

The Magazine of Light: Architects Edition (1946, No. 5). Articles on store lighting include "Light and Sales," by C. J. Allen; "Lighting Planned for Profit," by W. M. Potter; "Planned Lighting," by M. M. Allon. Lamp Dept., General Electric Co., Nela Park, Cleveland, Ohio.*

Viz-Aid Commercial Fixtures and **Topnotch Commercial Fixtures (Bulletins 10-B-1 and 10-B-2).** Revised listings of the Viz-Aid 40- and 100-watt units and the Topnotch 40-watt open-type fixtures. Description of the new "A-J" adjustable stem hanger for continuous installations. Complete specifications, price tables, installation details, tables for figuring footcandle intensities. 12 and 8 pp., illus. Day-Brite Lighting, Inc., 5411 Bulwer Ave., St. Louis 7, Mo.*

Westinghouse Mercury Vapor Lamps. Page of technical data and recommended applications for Westinghouse H lamps. In tabular form. Gives complete data on each lamp in the line. Lamp Division, Westinghouse Electric Corp., Bloomfield, N. J.

MEMORIALS

Bronze Memorial Tablets. Brochure illustrating bronze memorial tablets, honor roll plaques, and commercial signs and desk plates in standard patterns. 6 pp., illus. Pan American Bronze Co., 628–642 Sycamore St., Cincinnati 2, Ohio.

METALS

Perforated Metals, Screens, Fabricated Metals. Catalog, giving full specifications, ordering information, general data. Section on perforated metal grilles and ornamental perforated metal for constructional and industrial uses. Items include open steel flooring, stair treads, lip screens. Large section of useful tables: weights of various metals, equivalents of measure, equivalents of millimeters in inches, circumference and area of circles. 126 pp., illus. Hendrick Mfg. Co., Carbondale, Penn.*

Round Frame, Protected Type Motors for Close Coupled Service (Bulletin SL-300-3). Describes protected-type motors designed for close coupling

(Continued on page 124)

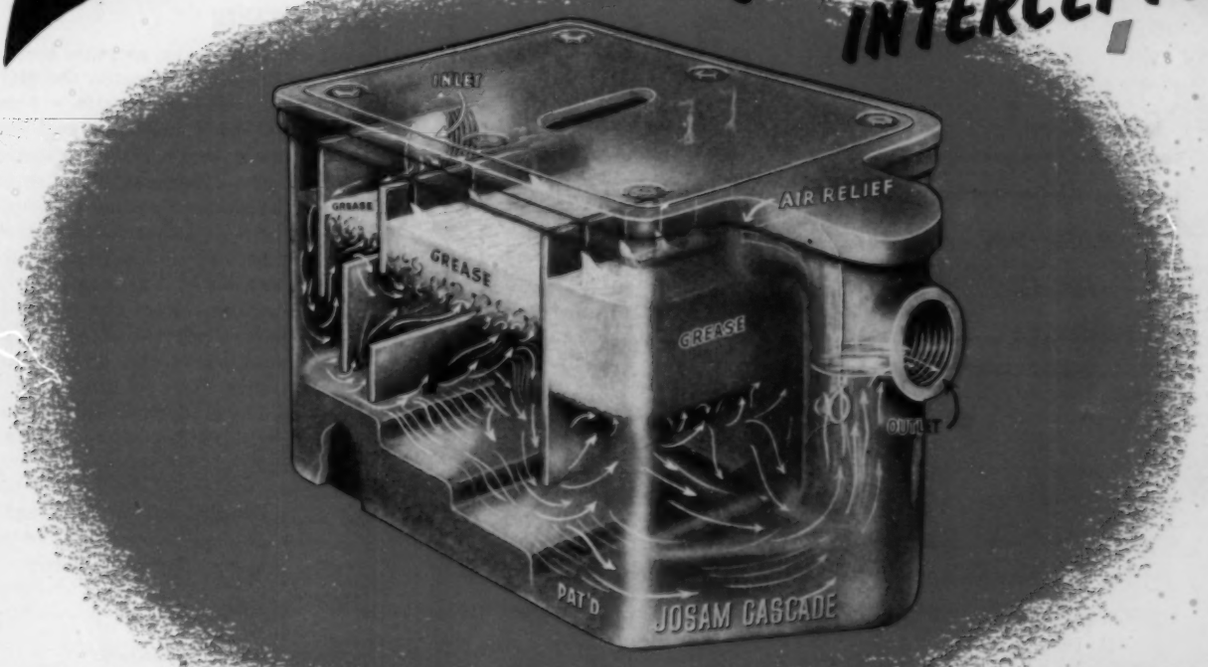
* Other product information in Sweet's File, 1946.

YOU CAN'T USE DYNAMITE TO CLEAR THE DRAINAGE SYSTEM WHEN *grease* FROM KITCHEN DISHES CHOKES UP THE PIPES

Wherever food is served, grease is an ever-present hazard. For when the grease from dishes, pots and pans is washed down the drains, it builds up layer upon layer on the inside of the drain lines until it eventually clogs up the pipes. When that occurs, you just can't "blow out" the grease. Kitchen service must be interrupted and repairs must be made which are costly and inconvenient. *The right time* to guard against this hazard is when specifications are being written . . . and *the right way* is to install exclusive Josam Cascade Grease Interceptors. Their cost is so little compared to the permanent trouble-free service they provide!

PLAN FOR *constant* ACTION

INSTALL THE *exclusive* Josam CASCADE GREASE INTERCEPTOR



An exclusive feature of Josam Grease Interceptors is the Cascade Design, based on the principle of the waterfall. Due to the tumbling of the grease-laden water over four levels, the grease is separated from the waste water with speed and completeness, regardless of temperature. The tumbling action is augmented by baffles scientifically placed with relation to each other to cause the proper degree of agitation below grease level, thus retarding the flow of water, forcing the grease to separate and rise to the top level where it can be easily removed. No cold water connections are necessary. Solids and sediment are evacuated, preventing decomposition of solids which cause odors in ordinary types of grease interceptors. Each Josam interceptor is equipped with the Josam exclusive "flow-control" which governs flow and insures over 90% grease retention efficiency. To be sure, specify Josam Cascade Grease Interceptors. A type and size for every installation. Accept no substitutes!

Write for free copy of Manual "A"—a digest of the latest important information on Grease Interception.

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( ) Send free copy of Manual "A"
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NAME .....
FIRM .....
ADDRESS .....
CITY and STATE .....

(*Continued from page 104*)

MIDGET FURNACE

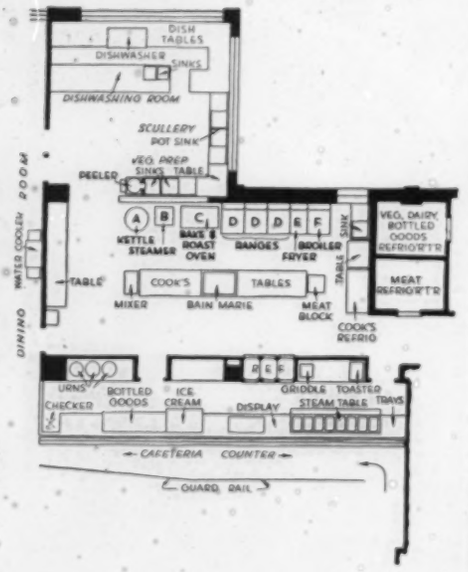
Following the design principles of airplane heaters, *South Wind Midget Furnace* will soon be available as a unit of unique compactness for furnishing automatic gas heat. Key feature is the sealed flame system which makes it possible to burn the gas fuel in a confined space, permitting the use of small sealed metal tubes leading outside the house for venting instead of a chimney. The furnace is of stainless steel and "about the size of a suitcase," 30 in. by 14 in. by 9½ in. Weight is 70 lb., or 45 lb. without the cabinet. It may be installed beneath the floor, in the floor, in the ceiling, in the attic, or even on the top shelf of a closet. Heat is distributed to rooms through short lengths of ducts, perhaps 1 ft. or 1½ ft. in length. Each unit has a capacity sufficient to heat about 2½ rooms, with individualized thermostatic control. Heater Division, Stewart-Warner Corp., Indianapolis, Ind.

KITCHEN PLAN NO. 40:

Fortieth of a series of successful mass-feeding kitchen plans.

This streamlined, smoothly flowing, industrial cafeteria kitchen was the winner of an award in a recent National Food Service Design Contest.

KEEP FOR HANDY REFERENCE!



COOKING EQUIPMENT USED:

(a) 1 Stock Kettle
(b) 1 Vegetable Steamer
(c) 1 No. 909 GAS FIRED BLODGETT BAKING AND ROASTING OVEN
(d) 3 Solid Top Gas Fired Ranges
(e) 1 Gas Fired Deep Fat Fryer
(f) 1 Gas Fired Ceramic Broiler

Designed by: Olson & Urbain, and the Stearnes Company, Chicago, Illinois

Flexibility of operation is extremely important in modern, high speed food service. The No. 909 Gas-Fired Blodgett Oven used in this installation produces a large variety of pies, cakes, pastry and rolls, and at the same time handles considerable quantities of roast meats, fish and baked vegetables — an oven arrangement that is ideal when space saving and menu variety must be combined.

The G. S. BLODGETT CO., Inc.

50 Lakeside Avenue **Burlington, Vermont**

The new, deluxe edition of "Case Histories of Successful Mass-Feeding Installations" is ready. Send for your copy now!

Circuit breaker offers dual protection

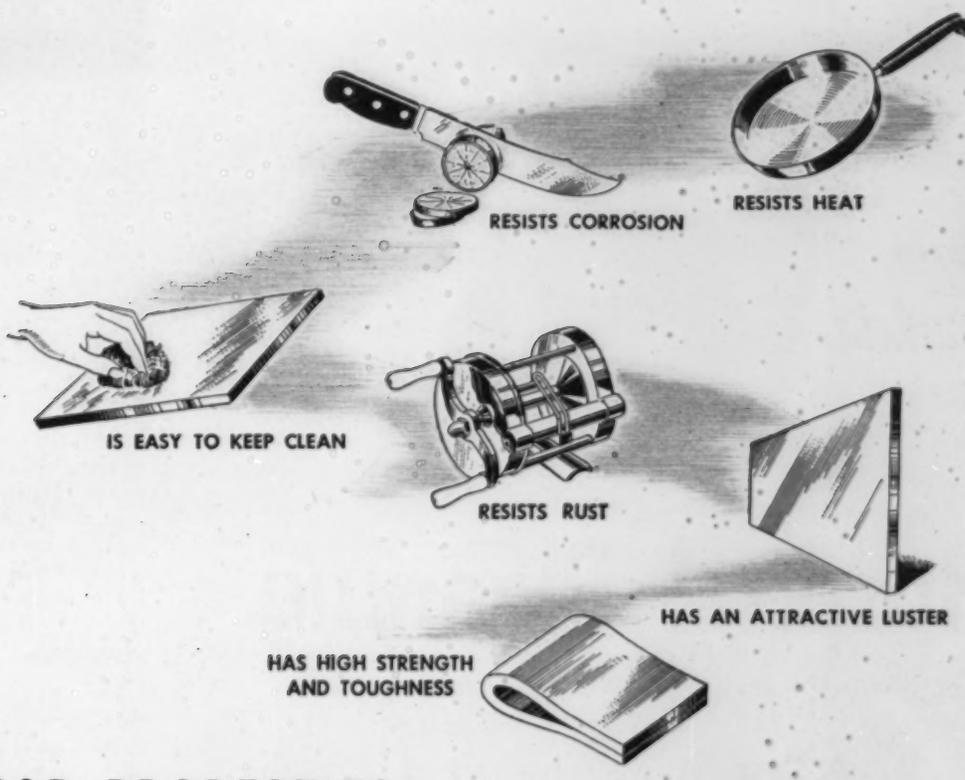
MULTI-BREAKER

For use as a service entrance breaker and distribution load center, the *MO 4 Multi-Breaker* incorporates in a 4-pole unit both thermal and high speed magnetic tripping action. Dual protection is provided as follows: The bimetal element functions only when a sustained overload or heavy short circuit occurs, and does not trip under harmless, momentary overloads. The magnetic trip, which is coiless, clears the circuit instantly under moderate or heavy short circuit conditions. The multi-breaker measures only 5 1/16 in. wide, 7 3/16 in. high, and 2 7/8 in. deep. It will be available in single pole branch circuit capacities of 15, 20 and 30 amperes. By means of a handle tie furnished with each unit, the multi-breaker can be converted to a device with one or two double pole 3 wire circuits. Federal Electric Co., Newark, N. J.

TRANSPARENT MIRRORS

First large-scale production of transparent mirrors has been announced. When viewed from one side the glass functions as a reflective surface, while on the other it acts as a window. Key to its double qualities is the almost incredible thinness of the film of chromium alloy with which it is mirrored. This film is about four ten-millionths of an inch thick and, while constituting an effective reflecting surface, also permits the passage of light. Suggested uses are in doors of apartments and houses, to permit a secret glance at callers, as observation windows in child behavior clinics and psychiatric wards of hospitals, and as security windows in banks and commercial institutions. Libbey-Owens-Ford Glass Co., Toledo, Ohio.

(*Continued on page 116*)



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When you are designing a new product that requires any or all of these properties, stainless steel is the answer. Perhaps your problem is corrosion and heat resistance in turbine blades. Or do you need a metal that will be easy to clean for food-processing equipment or one that will retain its gleaming surface for architectural trim? Are you designing for resistance to extreme corrosion in chemical and textile equipment? Now that stainless steel is again available, it can help you to improve your product in many ways.

If you are interested in the newer uses of stainless and other alloy steels, ask to receive the monthly publication, ELECTROMET REVIEW. Or, if you need advice on their production, properties, or fabrication, write our Technical Service Department. We do not make steel, but we do produce the ferro-alloys which are used in its manufacture, and our engineers have accumulated a fund of information on the use of stainless steel in many industries.

ELECTRO METALLURGICAL COMPANY
Unit of Union Carbide and Carbon Corporation
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In Canada: Electro Metallurgical Company of Canada, Limited, Welland, Ontario

STAINLESS STEEL

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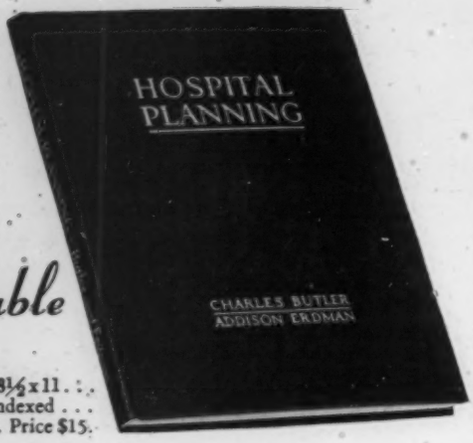

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ARCHITECTURAL ENGINEERING

TECHNICAL NEWS AND RESEARCH

(*Continued from page 114*)

PACKAGED MEALS

Recently announced is a stainless steel airtight container for delivery of individual servings of prepared meals, which will keep them hot or chilled for as long as three hours after packing. *Meal-pack Container*, model 11, is casserole-size, 10½ in. in diameter, and sectionalized so that it can contain cutlery and baked goods as well as different types of prepared food. Smooth surfaces throughout are designed for easy cleaning and sterilizing. This individual container is the basic element of an entire line of kitchen packing, mobile handling, and serving equipment. Mealpack Corp. of America, 152 West 42nd St., New York 18, N. Y.

HUMIDIFIER

The saying, "Furnace heat is dry heat," need no longer be true, according to the manufacturer of *Humidair*, a humidifier which reportedly has an evaporating capacity that will maintain 35 to 40 per cent relative humidity with either high- or low-temperature warm-air furnaces. The device is connected to city water system for its water supply, which is replenished and shut off automatically. It is said to have four times as much evaporating surface as ordinary dome-type humidifiers, and can be used in hardwater districts. Skilbeck Mfg. Co., Kenosha, Wis.

INSULATING SLABS

Manufactured in 1-in., 2-in., and 3-in. slabs, 4 ft. by 4 ft., with or without paper backing, *Cemex* is offered as a structural fireproof insulating material. It is reported to be made of scientifically treated long tough wood fibers, coated with Portland cement, compressed to desired thickness, and air dried and cured for maximum strength. The manufacturer recommends it for the following uses: as combined stucco base and sheathing, fireproof wall partitions, interior plaster base, industrial roof deck, and insulation for walls, floors, and steel roof framing. Cemex can be sawed like lumber when cutting and fitting is required. Structural Insulation Corp., 333 N. Michigan Ave., Chicago 1, Ill.

CORRUGATED PLASTIC

The transparency and light-diffusing qualities of *Plexiglas* plastic are now available in corrugated sheet that has greater strength in thinner sections. It is suggested for use as lighting shields, freestanding screens, inner partitions in homes and offices, and a lighting aid in window and display fixtures. Rohm & Haas Co., Philadelphia, Penn.

RCA *Unit-Built* SCHOOL SOUND SYSTEM

Switch panel for distribution to 64 speaker zones.
Dual-channel control panel, with six inputs, and individual controls for mixing, switching, and monitoring.
Duplicate switch panel for 64 additional speaker zones.
Transcription-recording and playback pedestal.
RCA Radio Tuner for AM, FM and short wave reception. Bin-type design.

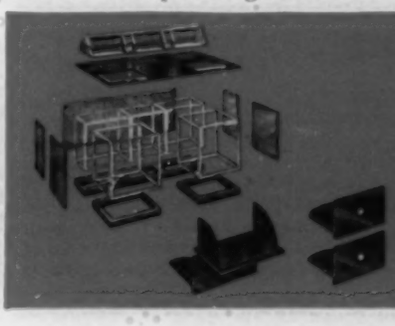
Complete sound facilities . . . correct styling . . . standardized dimensions . . . functional design

RCA's unit-built sound equipment simplifies the application of sound facilities to the varying requirements of individual schools. Standardized frames and panels are matched to make up distinctly styled basic units. Combinations of the various units by functions provide efficient sound control and complete facilities for all types of schools.

A typical Master Sound Control Console, assembled from RCA basic units, is shown above. In this case five units are used . . . providing any desired combination of program sources to as many as 128 loudspeaker zones. It provides "custom-built" performance within the price range of production equipment.

This RCA development follows long specialization in institutional sound equipment. Make use of RCA's experience when planning for sound systems in schools and other institutional buildings.

For complete specifications on the various unit-built sound combinations, write: Dept. 10-A, Sound Equipment Section, RCA, Camden, N. J.



Unit-Built

for full flexibility

Standardized frames and panels allow an extremely wide range of combinations, to cover all existing and future sound requirements.

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gress and Exposition, Oakland Municipal Auditorium, Oakland, Calif.

March 25–28: 17th annual Safety Convention and Exposition, Hotel Pennsylvania, New York City.

May 5–11: 2nd National Plastics Exposition and Annual Convention, The Society of the Plastics Industry, Coliseum, Chicago.

June 12–22: 2nd annual Construction Industries Exposition and Home Show, Pan-Pacific Auditorium, Los Angeles.

FELLOWSHIP OFFERED

Announcement has been made by the School of Architecture of Princeton University of the Lowell M. Palmer Fellowship in Architecture for 1947.

The purpose of this Fellowship is "to enable a student of unusual promise to undertake the advanced study of architecture at Princeton, and to take advantage of the opportunities offered by the close affiliation of the School of Architecture, the Bureau of Urban Research, the Department of Art and Archaeology, and the other graduate departments of Princeton University."

The Palmer Fellow is exempt from tuition fees, and will receive a stipend of $700 during his year of residence at Princeton.

Particular consideration in awarding the fellowship will be given to (1) achievement in architectural design; (2) scholastic record; (3) personal character; (4) professional experience. All applicants must hold a Bachelor's degree, must be citizens of the United States, less than 27 years of age on October 1, 1947, and in good physical condition. Applications must be received not later than March 1, 1947. Application blanks may be obtained from the Secretary, School of Architecture, Princeton University, Princeton, N. J.

Use the time-proved, dependable Barber-Colman **RADIO CONTROL** *for garage doors . . .*

We designed, built, and installed Radio Control for garage doors in 1926 — nearly 20 years ago! Between then and 1936 we redesigned the units several times, simplifying the equipment and improving its dependability of operation. For the last 9 years (except for the war period) we have been offering a successful system which has proved its reliability in hundreds of satisfactory installations. With indications of a growing demand for this outstanding convenience in post-war homes, we urge you to investigate the distinctive features of the BARBER-COLMAN Radio Control. Your Barber-Colman representative has complete information or, if you prefer, we will be glad to send you our descriptive literature. Be ready to specify BARBER-COLMAN time-proved, dependable RADIO CONTROL for garage doors!

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OFFICE NOTES

Offices Opened, Reopened

David Searcy Barrow, Architect, has opened offices at 605 Central Ave., Wilmette, Ill.

E. J. Capello, Architect, has announced the opening of his office at 164–01 Northern Blvd., Flushing, N. Y.

Serge Chermayeff, A.I.A., A.S.P.A., F.R.I.B.A., has opened his new office at 307 E. 37th St., New York, N. Y.

Norris M. Gaddis, Architect, has opened an office at 544 Colusa Ave., El Cerrito, Calif.

Bernard J. Hein, Architect, has opened offices at 316 Hyde Bldg., Albert Lea, Minn.

Karl Buckingham Hoke, Architect, has reopened his offices at 1514 Madison Ave., Toledo 2, Ohio.

Percy M. Ivory, Architect, plan examiner in the Building Department of the Town of Irvington N. J., for the past 10 years, has returned to private architectural practice with offices at 1073 Springfield Ave., Irvington, N. J.

Laurence P. Johnston, A.I.A., has opened offices at 1515 Sherman Ave., Evanston, Ill., and will specialize in hospital planning.

Robert McKean, formerly an associate in the office of Gilbert Rohde, has opened industrial design and product development offices at 165 E. 72nd St., New York 21, N. Y.

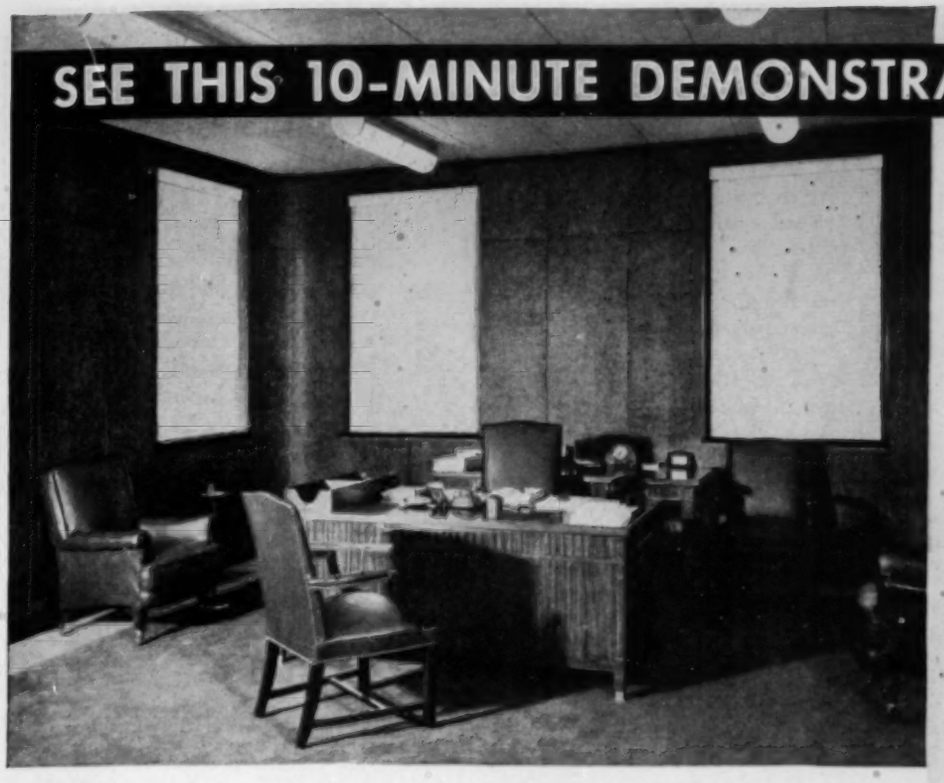
Bert J. Morris, Residential and Commercial Designer and Draftsman, has opened an office at 2826 W. Central Ave., Newport Beach, Calif.

The office of Gerald Anthony Paul, R.A., has established quarters for the general practice of architecture, engineering and industrial design, at 333 Fourth Ave., New York 10, N. Y. Mr. Paul formerly was with Morris Lapidus.

F. M. Olston, Architect, has reopened his office at 306 Springer Bldg., Tulsa 3, Okla.

Carl Schmuelling, A.I.A., until re-

(*Continued on page 120*)



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MISSOURI
Kansas City, St. Louis — Henges Company, Inc.

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Huntington — E. C. Decker & Co.

WISCONSIN
Milwaukee — Edward T. VerHalen, Inc.

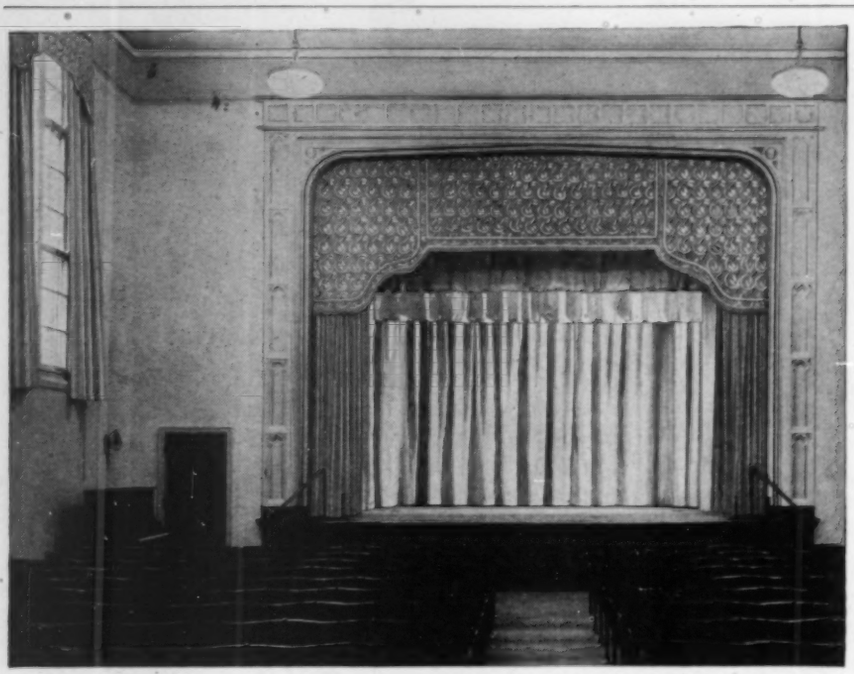
cently associated with Wm. W. Carlton & Associates, Engineers and Architects, has announced his return to his own architectural practice after almost four years in the Seabees on Guadalcanal and Aleutian duty. Address, 6224 Kennedy Ave., Cincinnati, Ohio.

Seth Talcott and Charles H. Talcott have announced the resumption of their partnership under the firm name of Talcott & Talcott for the general practice of architecture with offices at 6 W. Putnam Ave., Greenwich, Conn.

John M. Walton and Associates, Architects, have opened an Arlington, Va., office in the Radio Bldg., 2030 Sixteenth St. N., Arlington, Va.

Eugene Weisberg, Architect, has established an office at 219 Central St., Lowell, Mass.

Maxwell E. Wright has announced the opening of an office for the practice of architecture and allied design at 805 Kales Bldg., 76 W. Adams St., Detroit 26, Mich.



More than 50 CHICAGO SCHOOLS now use fabrics that *CANNOT BURN*

NEW YORK, ST. LOUIS, NEW ORLEANS SCHOOLS enthusiastically endorse Fiberglas fabrics. Building, fire and safety officials recommend them.

From a state building official:
"Every place of public assembly, such as schools, auditoriums and the like, should be provided with Fiberglas curtains."

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". . . suitable for auditorium proscenium arch curtains, cyclorama curtains, back drops and window curtains and drapes. These fabrics do not burn or propagate flame and possess the additional quality of aiding the acoustics . . ."

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With children's lives at stake, half-way measures are not enough to prevent the horrors of a school fire. That is why Chicago elementary, high school and college auditoriums are rapidly being redecorated with Fiberglas* fabrics. These attractive, non-combustible fabrics are woven entirely of finely spun glass filaments; immune to rot or decay. They eliminate the hazards and costs of temporary flameproofing; if exposed to fire will not emit asphyxiating fumes. Now available in a variety of weaves, solid colors, prints.

The PRESSING SCHOOL installation, shown above, combines a modern leaf design in jade green with salmon-colored diamond weave. This dignified stage and window treatment is easily cleaned; always operates at 100% efficiency.

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New Addresses

The following new addresses have been announced:

Alfred Watts Grant, Architect, Rooms 207–208, Midland Savings Bldg., Denver 2, Colo.

Gypsum Assn., Chicago, 330 S. Wells St., Chicago 6, Ill.

Firm Changes

Jonathan Fairchild Butler and Francis Day Rogers have announced formation of a partnership, to be known as Rogers & Butler, for the practice of architecture with offices at 70 E. 45th St., New York 17, N. Y.

Dominic E. Campanella has been appointed a partner in the firm of Telchin and Campanella, Architects.

Arthur Quentin Davis and Nathaniel C. Curtis, Jr., Registered Architects, have announced formation of the architectural firm of Curtis and Davis, Architects and Associated Engineers, with offices at 720 Union St., New Orleans, La.

Joseph Kichaven, Architect, and Robert J. Mayer, Associate, have opened offices for the practice of architecture under the firm name of Robert J. Mayer and Joseph Kichaven, Architect Associates, at Room 203, El Serrano Bldg., 556 S. Serrano Ave., Los Angeles 5, Calif.

Martin, Frank, Inc., has announced a change of firm name to Frank and Hollinshead, Inc.

C. Hardy Oliver and Alex A. Dickson have formed a partnership for the practice of architecture under the firm name of Oliver & Dickson, Architects, with offices at 1205 Hampton St., Columbia 29, S. C.

Leonard Schultze and Associates, Architects (Leonard Schultze, E. V. Meroni, Lloyd Morgan and Wm. Sunderland), are now practicing their profession at 119 E. 40th St., New York City.

Joshua M. Sprague has joined the technical staff of the Clay Sewer Pipe Assn., as District Engineer in New York and the Atlantic Seaboard. Address, 26 Court St., Brooklyn, N. Y.

A. Carl Stelling has announced the association of John Robinson Tregenza in the practice of landscape architecture and site planning. Address, 77 Park Ave., New York 16, N. Y.

L. MOHOLY-NAGY

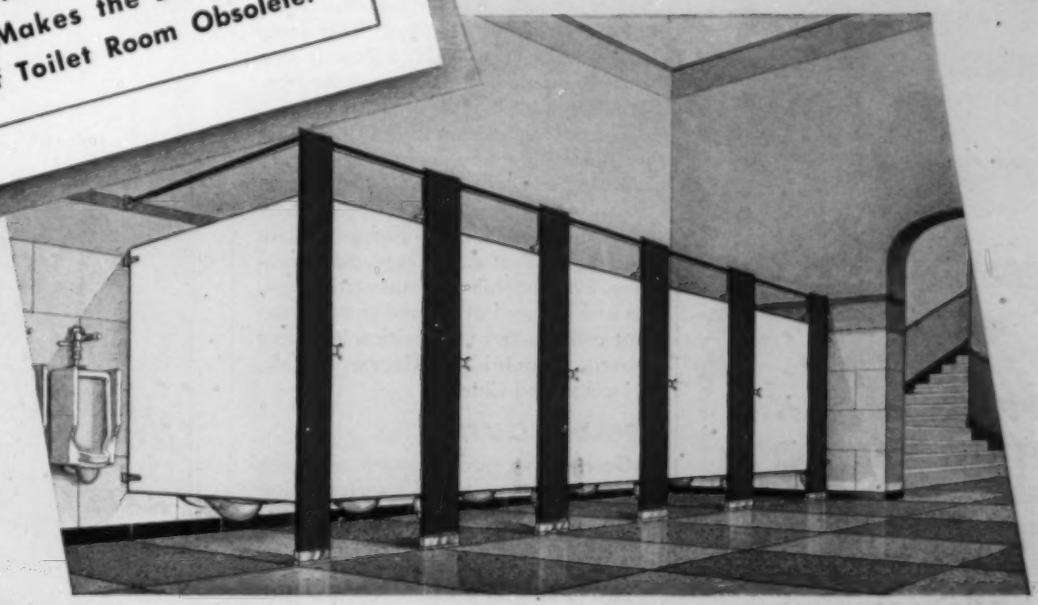
Laszlo Moholy-Nagy, founder and president of the Institute of Design, Chicago, died on November 24 at the age of 51.

Moholy-Nagy, or Moholy as he was frequently called, was widely known throughout Europe and this country as writer, lecturer and artist. As a member of the staff of the Bauhaus from 1923–

(*Continued on page 122*)

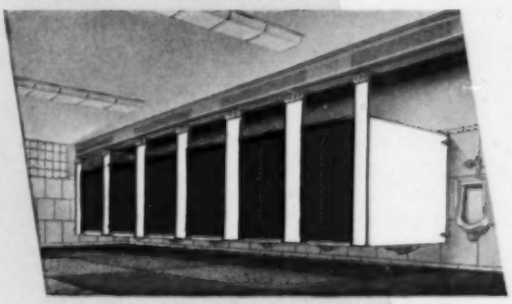
Sanymetal* Trade Mark Reg. U. S. Pat. Off

The Ascendancy of Good Taste Coupled with Convenience in Toilet Room Environments Makes the Bare Functional Type of Toilet Room Obsolete.

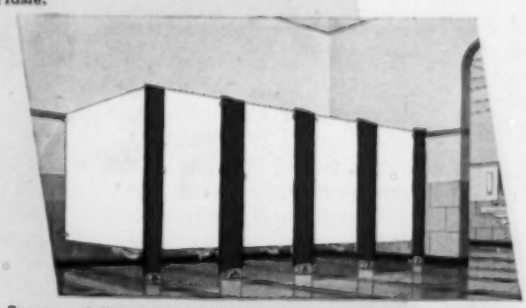


Sanymetal "PORCENA" ACADEMY Type Toilet Compartments are suitable for conservative but modern toilet room environments

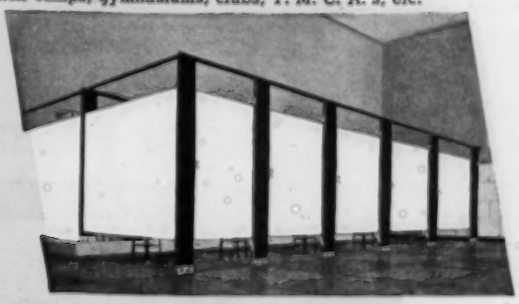
Sanymetal "PORCENA" CENTURY Type Ceiling Hung Toilet Compartments offer the utmost in sanitation and provide modern, distinctive toilet room environments for schools, institutions, terminals and other public buildings.



Sanymetal "PORCENA" NORMANDIE Type Toilet Compartments endow a toilet room environment with dignity and good taste.



Sanymetal "PORCENA" ACADEMY Type Shower Stalls and Dressing Room Compartments provide the utmost in sanitation for tourist camps, gymnasiums, clubs, Y. M. C. A.'s, etc.



● Simplicity, cleanliness and good taste will not be denied expression in building interiors of the future. Toilet compartments usually dominate a toilet room, influencing the toilet room environment.

Sanymetal "PORCENA" Toilet Compartments are fabricated of ageless and fadeless material, porcelain on steel, which is a glass-hard, stainless material that always looks new, does not absorb odors, is moisture- and rust-proof, and resists the corroding of ordinary acids. The glistening "PORCENA" finish, which can be wiped clean as easily as a porcelain table top, requires no painting or refinishing.

Sanymetal "PORCENA" Toilet Compartments combine the results of over 33 years of specialized skill and experience in making over 80,000 toilet room installations. Ask the Sanymetal Representative in your vicinity (see "Partitions" in your phone book for local representative) for further information about planning suitable toilet room environments. Refer to Sanymetal Catalog No. 19-B5 in Sweet's Architectural File for 1946.

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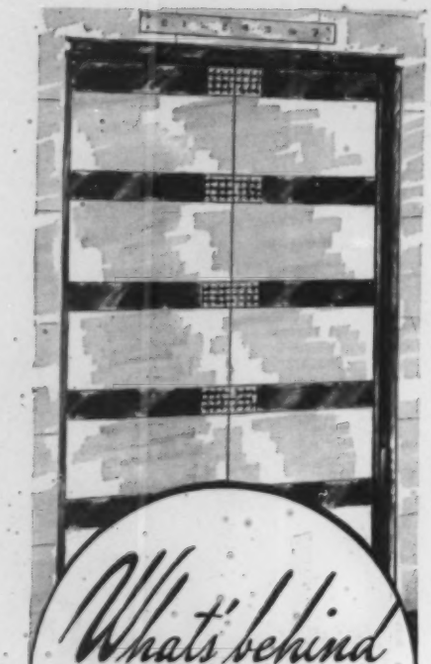

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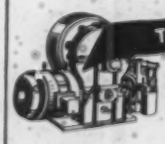

THE MACHINE

Construction features taper fits, positive oil seals, Timken bearings, sturdy dependable brake, sizes to meet all requirements.

THE CONTROLLER

Rugged dependable design. Special features include copper to copper contacts for longer service life.

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MONTGOMERY
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Home Office: Moline, Illinois
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THE RECORD REPORTS

(*Continued from page 120*)

1928, he had charge of the basic course and the metallurgical workshop, later turning his hand to the editing, with Walter Gropius, of the 14 Bauhaus books and the quarterly "Bauhaus." He came to this country in 1937, following two years in London, as director of the New Bauhaus in Chicago.

The author of a number of books on art and architecture, including *The New Vision*, Moholy-Nagy had had exhibitions of his painting and sculpture in all the important cities of Europe and in New York, Boston, Chicago, San Francisco, Philadelphia and other cities here. He had lectured at a number of important colleges and universities, including Oxford, Cambridge, Harvard, Yale, Princeton and Chicago.

GEORGE S. CHAPPELL

George Sheppard Chappell, architect, author and lecturer, and associate editor of *The Litchfield* (Conn.) *Enquirer*, died at his home on November 25 following a long illness. He was 69.

Mr. Chappell, a native of New London, Conn., and a graduate of Yale University, studied at the Ecole des Beaux Arts, Paris and was a member of the A.I.A. and the Society of Beaux Arts Architects.

Writing both under his own name and under the penname of Dr. Walter Traprock, Mr. Chappell was the author of several highly popular humorous volumes including *The Cruise of the Kawa*, *My Northern Exposure*, and *Through the Alimentary Canal With Gun and Camera*.

TIMOTHY PFLUEGER

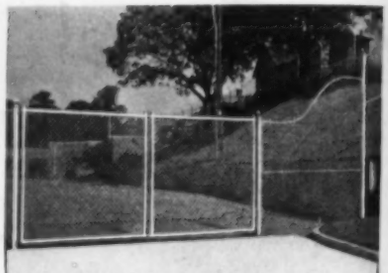
The death of Timothy L. Pflueger, A.I.A., on November 20 brought to an end a career just reaching its height.

Born in San Francisco, Mr. Pflueger received his architectural training in an atelier and office in that city. Among the many notable buildings of his design was the Court of Pacifica at the Golden Gate International Exhibition.

S. B. MARSTON

Sylvanus B. Marston, F.A.I.A., died on November 16 at his home in Pasadena, Calif. He was 63.

A native of San Francisco, Mr. Marston spent the greater part of his life in Pasadena. For many years associated with Edgar W. Maybury in the architectural firm of Marston & Maybury, he was the designer of many prominent buildings in the Pasadena area. He was chairman of the Pasadena City Planning Commission and served two terms as president of the Southern California Chapter of the A.I.A.



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